

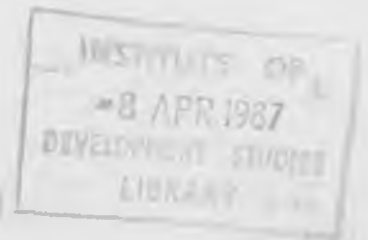


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INSTITUTE OF SOUTHERN AFRICAN STUDIES
THE NATIONAL UNIVERSITY OF LESOTHO

RESEARCH REPORT NO.9

CLASSROOM ACTION - RESEARCH
CASE-STUDIES IN DEVELOPMENT STUDIES
TEACHING IN LESOTHO CLASSROOMS



J.S. Stuart, P. Makhetha, M. 'Musi
L. Putsoa, 'M. Seotsanyana, with
C.M. Chabane & E.B. Mokhosi

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CLASSROOM ACTION - RESEARCH

Case-Studies in Development Studies Teaching

In Lesotho Classrooms

by: J.S. Stuart, P. Makhetha, M. 'Musi
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Edited by J.S. Stuart

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FOREWORD

These case-studies have their roots in the 'Curriculum Studies in Development Studies' courses at the Education Faculty of the National University of Lesotho (NUL), in which we all took part between 1981 and 1984. Small pilot research projects often formed part of those courses, and when the late Prof. Anthony Rweyemamu was Head of Research at the Institute of Southern African Studies (ISAS) he encouraged Mrs. Stuart to undertake a larger research project, as a doctoral study. We are grateful to ISAS for its continued support throughout the period of the research.

The four teacher-researchers - Mr. Phuthi Makhetha, Ms. Mahlane 'Musi, Mrs. Lomile Putsoa and Mrs. 'Maisang Seotsanyana - gathered together on a voluntary basis in the winter of 1984. They wanted to improve their own classroom practice, to gain experience of research, and to help develop the teaching of Development Studies. Mr. Tlohang Sekhamane was also a member of the team until December 1984; we would like to acknowledge the stimulating contributions he made during that period, and to express our regret that heavy professional commitments at Mapholaneng High School - plus the distance - precluded any further activity on his part.

Funding was obtained firstly from the Joseph Rowntree Charitable Trust of York, England, and then from the International Development Research Centre of Canada. We thank them both for making the project possible.

In January, 1985, two members of the Institute of Education at N.U.L., Dr. M.R. Montsi and Mr. C. Chabane, and one member of the Department of Language and Social Education, Mrs. E.B. Mokhosi, joined the project to help as consultants. We deeply appreciate their contribution to our work.

Mrs. M.E. Motuba patiently transcribed many of the tapes. Ms. Mpinano Motsetsela acted as research assistant by translating, coding questionnaires, transcribing and typing for the whole team. Ms. Liz Popp produced the final typescript to a very tight schedule. Without the help of these people our reports would not have seen the light of day.

We wish to thank the principals and staff of the case-study schools and of the other schools visited, for their interest and support. We also acknowledge the co-operation of the students, who with forbearance and good humour answered our questions, performed their assignments, and allowed themselves to be observed and recorded.

Finally, we want to express our gratitude to our friends and to members of our families, who have put up with our absences and have helped us to bear the burden of extra work throughout the year. To these, and to John and Judy Gay, who in many ways have acted as 'godparents' to the project, our deepest thanks.

P.M., M.M., L.P., M.S., J.S.
Maseru, July 1985

A Note on the Data

The Case-studies contain extracts from many of the taped lessons and discussions, and from student scripts. The students' anonymity has been preserved by altering all names throughout. In the Case-study on 'Teaching for Thinking', the schools have also been given pseudonyms as they were not part of the research project.

In the transcripts, students are marked as 'S' for student, 'B' for boy and 'G' for girl. In the case of N.T.T.C. we used 'M' for man and 'W' for woman. When it was possible to identify the different speakers, we labelled them as 'S1', 'S2', 'S3', or 'A', 'B', 'C', etc. Where no identification was possible, a dash indicates the change of speaker. A '/' indicates two speakers talking at once. Comments in brackets came from the observer's notes.

When students' scripts are quoted, spelling, punctuation and grammar have been written as closely as possible to the original.

CHAPTER 1

THE ACTION - RESEARCH PROJECT IN PERSPECTIVE

Janet Stuart

Lesotho Action-Research Group

The Lesotho Action-research Group (known as LARG) came together in June, 1984. The team comprised five teachers of Development Studies and myself as consultant.

Development Studies and beyond. Development Studies aims to teach students about 'the problems and processes of development' (1) using concepts and ideas drawn from history, geography, economics, political science and sociology. Being relatively new as a secondary school subject - it was introduced as such into Lesotho in 1973 - there is as yet no well-established pedagogy for teachers to draw on, and one of the aims of the Project was to attempt to develop appropriate teaching approaches. Action-research seemed a suitable method of doing so, and this would fulfill another of the Project's aims, which was to introduce Basotho teachers to Action-research and see how far it would be useful in Lesotho's educational context.

The Case-studies that follow try to provide some tentative answers to both these questions: through describing their own experiences, the team offer some ideas about teaching Development Studies, and at the same time they show how the methods of Action-research provided them with insights into their own teaching and into the students' learning processes. We believe the research methods are applicable to any subject and at any level, and we hope therefore that the Case-studies will be useful to teachers in general, and not just to our Development Studies colleagues.

What is Action-research?

Action-research is a type of research in which the researchers become a part of the situation they are studying, and act to change it in the process of study. It can therefore be contrasted with the type of research in which the researchers stand outside the situation, observe, measure and evaluate it as objectively as possible, while trying to leave it unchanged.

Classroom Action-research means that teachers investigate the teaching and learning situations that exist in their own classrooms, with the intention of improving their own practice. The teacher has to combine analysis of a situation with action to change it. For example, after collecting some preliminary data, the teacher may deliberately introduce new elements into the classroom, and then try to observe the results systematically and rigorously. In the process, s/he hopes to become a 'better teacher'. Thus Action-research can be at the same time a means to professional development.

An important assumption underlying this model is that educational research should not merely add to our stock of scientific knowledge, but should improve teaching as well. Another assumption is that the

best way - some would say the only way - for this to happen is through involving teachers in the research process, so that they carry out the research themselves, with support from each other and/or from an outside consultant. It is the people in the classroom who benefit. Again, this can be contrasted with the research model whereby academics come down from their 'ivory towers' to administer tests, go away at once clutching their data, and then publish their findings in academic journals which the teachers don't have time to read. The benefit accrues almost entirely to the academics and their careers.

Brief History of Action-research

The 'father' of the movement in the U.K. was Lawrence Stenhouse (2) who developed a model of Curriculum Development whereby the teacher becomes the researcher and developer of new curricula. In the early 1970's John Elliott adopted the term 'Action-research' to describe the work of the Ford Teaching Project at the Cambridge Institute of Education. He worked with 40 teachers to find out what actually happened when they were using 'discovery/enquiry' methods in schools. (Many teachers found quite unexpected results, such as that they were not fostering independent learning at all, but creating a new kind of dependency!) (3)

The Ford Project disseminated reports and case-studies, which stimulated other teachers to use similar methods of investigation into their own classroom practice. They formed a group known as the Classroom Action Research Network (CARN) which publishes members' research. Two members of our team attended the CARN International Conference in England in November, 1984. There were delegates from America, Australia, and Europe, but LARG is apparently the first of its kind in Africa. It is noteworthy that members of CARN and such groups are largely classroom teachers and teacher-educators, not academics. The Action-research networks are participatory and democratic movements which have grown from the grassroots upwards.

The Process of Action-research

To guide teachers, John Elliott has drawn up a 'framework for self-evaluation in schools' (4) in which he suggests that the action-researcher should try to follow a basic sequence of:

REVIEW DIAGNOSIS - PLANNING ACTION - IMPLEMENTATION
MONITORING THE EFFECTS

This was elaborated into a series of steps, which constitute a 'cycle' (The cycle is often, though not necessarily, co-ordinated with a school term). The steps suggested are illustrated in the diagram (p. 3) and can be described as follows:

- (1) The 'General Idea' comes out of a problem or concern the teacher has experienced.
- (2) In the 'Fact-finding & Analysis' stage (sometimes called 'Reconnaissance') one collects data on the problem, and analyses it to produce some tentative explanation which can be used as a working hypothesis.
- (3) Such hypotheses help one to formulate a 'General Plan' based on the original 'General Idea', but refined in the light of the data.

GENERAL
IDEA

FACT-FINDING
& ANALYSIS

CYCLE
I

GENERAL
PLAN

DEVELOPING
ACTION-STEPS

IMPLEMENTING
ACTION-STEPS

MONITORING

ANALYSING
RESULTS

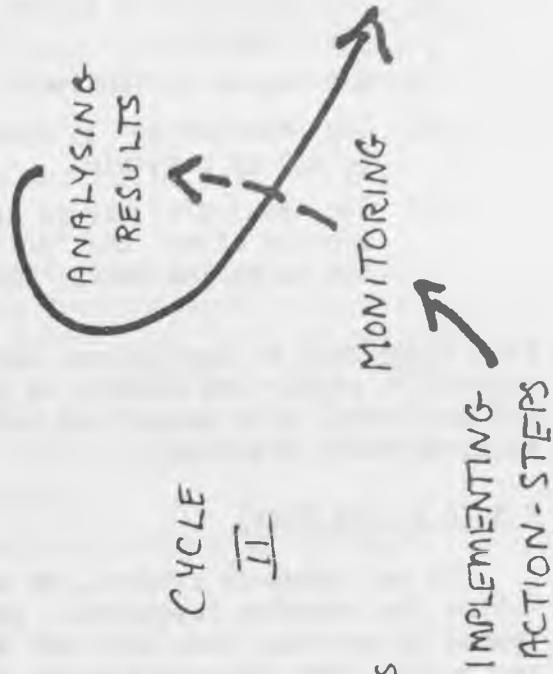
REVISE
GENERAL
PLAN

DEVELOPING
ACTION-STEPS

CYCLE
II

Based on:
ELLIOT, J. (1981)

Action-research: a Framework for Self-Evaluation in schools
Camb. Inst. of Education



- (4) One then plans a series of 'Action Steps' designed to improve the situation.
- (5) One begins to implement one or more of these steps.
- (6) The 'Monitoring' is done by as many different methods (see below) as possible.
- (7) The 'Analysis' may be carried out concurrently with, or shortly after, the 'Action Steps'; the findings will enable one to revise one's 'General Plan' and embark on a new cycle.

Each stage must be carried out methodically and recorded with as much scientific rigour and honesty as possible. It should then be written up and published, with supporting evidence, so that others may estimate its value to their practice.

A Note on the Model

In our research project, we used this as our model and tried to follow the sequence suggested. In practice, we found that the stages tended to overlap; they were not as clear-cut as set out above. In particular, the 'Reconnaissance' and 'Action-steps' tended to flow into one another. As the consultant, I could see this happening, but I have come to the conclusion that this quite accurately mirrors what the good teacher does: as she begins to collect data on her class and to reflect upon it, her professional expertise comes into play, she hypothesizes, albeit informally, and begins to test out her ideas in practice. When one sees something is wrong, one doesn't wait to amass more data before starting to put it right! Donald Schön, in a recent book called The Reflective Practitioner has illustrated this well. (5) So, while for the purposes of reporting, the authors of the case-studies have divided their accounts into 'cycles' and have analysed what they did in terms of the Elliott framework, the reader should be aware that in experience the stages are less distinct. However, we believe Elliott's to be a useful model, as it helps teachers discipline themselves to think rigorously about what they are doing, and plan systematically. This is essential if the findings are to justify the name of 'research'. We therefore recommend this framework to would-be action-researchers.

Methodology

Most Action-research uses a 'case-study' approach; it is rarely possible - or desirable - to select representative samples or to establish control groups, for obvious reasons.

By the very nature of the situation, the teacher-researchers are participant observers; their own reactions are an important part of the data. So they keep diaries, and write fieldnotes after every lesson to record their ideas while they are fresh. As an aid to more objective monitoring, audio- or video-tape recordings can be made of lessons, and these transcribed and analysed.

It is possible to carry out classroom Action-research on one's own but is much easier if there is an 'outsider' who can sit in the classroom and observe. It can be a friend, another teacher, or, as in our case, a consultant or 'facilitator'. This person makes notes about the lesson which s/he offers to the teacher as additional data. The

outsider can often carry out student interviews more easily than the teacher; this can then produce 'triangulation' on the lesson, whereby the three different perceptions of the teacher, the students and the outsider are compared and analysed to give a fuller picture of what went on.

Here is a list of methods of data collection we used in our project:

- tape recordings and transcripts of lessons and group discussions; (these were analysed in several ways: e.g. % of teacher and pupil participation, numbers and types of questions posed, number and cognitive levels of statements, etc. which then became data for the teacher)
- longhand running commentaries on lesson processes by observers;
- fieldnotes by teachers and observers;
- private diaries by teachers containing reflections on their practice;
- questionnaire and attitude surveys;
- examples of students' assignments and tests;
- observations of schools' physical and social contexts.

The interested reader can find more information on Action-research methods in Cohen and Manion (6).

An overview of the Research Project

Our first meeting was at the end of June, 1984. Using the Elliott model as our framework, we reviewed the situation and formulated the 'General Ideas'. In practice, I asked the teacher-researchers first to report on some of their teaching methods which had worked well for them, and then to outline some of the problems they had found. Finally, they should suggest what classroom methods or strategies they would like to try out in order to overcome these problems.

Although we were dealing with three different levels (Form B, Form D and primary teachers-in-training), there was a lot of overlap in their ideas, and common concerns quickly emerged. The team therefore agreed, which had not been pre-planned, to work along parallel lines, and we drew up a broad framework to guide the research.

The central themes in our 'General Idea' seemed to be that students did not take an active part in learning, and that they were not using higher order cognitive skills such as inferring, analysing, or evaluating. This situation seemed to be linked to attitudes of dependency on the teacher as the only source of information, and we further inferred from this that students have what we came to term a 'closed' conception of knowledge.

The problems we identified seemed to relate, therefore, to three different levels: to behaviour, to attitudes, and to the nature of knowledge. To spell out in more detail:

(1) On the behavioural level, we have observed in class the following problems:

- students apparently lack interest in their environment and find it hard to pose questions for enquiry;

- students are passive during lessons;
 - they show little evidence of using higher order skills.
- (2) On the attitudinal level, we assumed, from their behaviour and remarks, that they are often
- reluctant to take responsibility for their own learning;
 - highly dependent on teachers to hand out information to them; for example they ask to be given notes that they can learn by heart.
- (3) On the 'knowing' level, we inferred, speculatively, that our students may believe that knowledge is finite, closed and fixed; that it is something that they are given, rather than something which they actively appropriate through enquiry and which they can help to shape for themselves.

We suggested that certain classroom approaches or teaching strategies might help to improve this state of affairs, namely:

- (a) Discussion and debate, especially in small groups, where participation is inescapable, and where students are relatively independent of the teacher.
- (b) Experiential learning, such as field-trips, or simulation games.
- (c) The use of varied sources of information, apart from teacher and textbook, such as Bulletin Boards, guest speakers, the community, and other relevant literature such as novels.
- (d) A consistently open-ended teaching approach, whereby the teacher provokes argument, refuses to provide the 'right answer' and encourages students to pursue their own ideas further.

The teachers had, of course, already tried such methods from time to time but they agreed now to try to implement them more systematically than before, and to monitor the results carefully. Each teacher would adapt the 'General Idea' to his or her own classroom in the light of their own situation.

The Case-studies themselves will illustrate how we carried through these ideas in practice, and what we found out, but I would like here to make a few general points.

All members of the team used small group discussions; we taped and transcribed nearly 30 such discussion groups. This technique provided extremely useful feedback to the teachers, enabling them to 'hear' more clearly what was going on in the students' minds, and to understand some of their learning problems. One thing we discovered early on was that many students did not grasp what is meant by 'holding a discussion'. But as we continued to tape there was a very marked improvement in the ability to thrash out ideas in these groups. It is, of course, impossible to pinpoint any exact cause: we assume it was partly guidance from the teachers, partly practice and partly maturation.

Members of the team also used experiential learning, most often in the form of field-trips. We do have evidence that this, along with using varied sources of information, encouraged both the understanding of concepts and the ability to find things for oneself.

The idea of open-ended teaching emerged as a focal area of interest and was developed considerably in the course of the research. We would now define it along these lines:

'structuring the teaching-learning situation in such a way as to encourage students to speak and write from their own understanding and from their own view-point, instead of giving an answer they have learnt, or which they believe the teacher expects.'

Only if they are thus encouraged will the students come to see knowledge as infinite and open for them to grapple with.

We feel now that 'independent learning' by students is closely linked to the above. We have found that if, through such an open-ended approach, we can give the students the confidence that they can and should develop their own ideas, they will be readier to go and find things out for themselves, and take responsibility for their own learning. In this way we can tackle such problems as passivity and wean our students from overdependence on the teacher. We think we achieved some measure of success already along these lines. It became apparent that most students have the potential ability to learn for themselves, but they do not practise it by nature, and indeed the type of teaching they have often been exposed to in the past may have militated against such kinds of learning. Our experience suggests that teachers themselves may have to forget old models and devise new ones if they are to train students in open-endedness and independence.

Throughout the year we were interested in developing the students' levels of cognitive skill, and we experimented with different kinds of test items which could tap these skills. Again, we found most students were not fully using their cognitive powers, and that they needed quite specific teaching to enable them to use their 'thinking skills' effectively; if such teaching is given, achievement levels rise.

We would not claim to have 'solved' all the problems we had identified at the beginning of the project. Suffice it to say that our understanding of these problems has increased, and we have found some strategies which helped the situation in these particular classes. One general finding, perhaps, is that while at the start we phrased the problems largely in terms of student behaviour, we would now lay more emphasis on the teachers; we have acquired a deeper insight into our own roles in the classroom, and we have increased our own repertoires of professional skills, which may make it easier for us to deal with such problems in the future.

Teachers as researchers

Of one thing we are quite sure, however; we have proved that teachers in Lesotho can become their own action-researchers; they can develop skills of analysis and self-evaluation as well as those skills of evaluating their students. In the process, the teachers do become much more aware of what is going on in the classroom and can act, themselves, to improve it.

The capital costs are not great: a good tape-recorder and tapes are necessary, and a patient typist to transcribe them is a great asset, as this is very time-consuming. It is important, at least at the start to have someone to support and guide, but with practice, teachers could form their own groups to act as consultants to each other. Frequent meetings are a great help; this gives opportunities for reflection and analysis at regular intervals.

The greatest demands are on the teachers themselves: they need courage and commitment to their profession, and the readiness to give generously of their time and effort.

It is important to note that in this kind of research the teacher controls all the data and the results. The consultants are only there as resource persons, to provide ideas through literature and discussions, and to help the teacher by observing, interviewing and analysing, thus feeding back to the teacher more data for her to work with. Confidentiality is essential; for example, lesson tapes were given only to the teacher concerned, unless express permission was given for them to be shared. There is no way in which this data can be used to 'evaluate' the teacher for assessment by others; the primary purpose is self-evaluation. So it must not be confused with 'teacher-effectiveness' research.

However, the teachers, as professionals, do have a duty to make known any valid conclusions they may reach. Hence the practice of most action-researchers of writing up their research in the form of Case-study reports, in the hope that they may be of use to others. Because the research depends so heavily on the person and the context, such reports are usually written in the first person and, with permission, do not conceal the identity of the school. (Students must, however, remain anonymous)

No one is quite sure how far the findings from one case-study may be applied to another school, but the reports do make it possible for the research to be replicated by other teachers. In time, as a body of case-study literature builds up, it may be possible to draw from this some more general conclusions about classroom practice. This is now becoming the case in the U.K. and we hope it will be so in Lesotho. There has been very little research on classroom processes in Africa, and therefore models of classroom teaching and learning, such as used in teacher-training, are still largely drawn from the West. We hope that our findings, grounded in the realities of Lesotho schools, may constitute a small step towards the formulation of more appropriate models and theories of education in Southern Africa.

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CHAPTER 2

THE TEACHER AS RESEARCHER

Charles M. Chabane and Evelyn B. Mokhosi

(Note: When the Case-studies were presented at a Seminar in Maseru on 2nd July, 1985, a joint background paper was given by the above authors; this chapter comprises an edited version of the paper).

THE STENHOUSE VIEW. Charles M. Chabane

In reviewing Stenhouse's exposition on this topic, one has to first bring into focus his idea of curriculum.

Stenhouse realises that there are two views of curriculum:

- 1) As an intention, plan or prescription of what one would like to happen in schools.
- 2) As the existing state of affairs in schools; in other words, what does in fact happen.

He sees curriculum study as having to do with the relationship between these two views, and curriculum development as an attack on the gap that exists between aspiration and practices.

He then makes a very important pronouncement of what he believes:

"The gap can be closed only by adopting a research and development approach to one's own teaching, whether alone or in a group of co-operating teachers'(1)

He then offers the following definitions of curriculum:

'A curriculum is an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice.'(2)

As a follow-up to his perception he identifies curriculum 'as a particular form of specification about the practice of teaching and not as a package of materials or a syllabus of ground to be covered. It is a way of translating any educational idea into a hypotheses testable in practice.'(3)

Stenhouse then discusses the three models of curriculum:

1. The behavioural objectives model.
2. The process model.
3. The research and development model

He criticises the objectives models at length (though he does not dismiss it completely). In his critique he states:

'Education as induction into knowledge is successful to the extent that it makes the behavioural outcomes of the students unpredictable.'(4)

He does not see this model as a way to improve practice: 'We do not teach people to jump higher by setting the bar higher,' he says.

The second model, the process model, involves 'specifying principles of procedure of teaching rather than aims,' and he regards it as more educationally sound. Among other things:

- a) It is a critical model, which is not examination-oriented, (not a 'marking model');
- b) it pursues understanding rather than grades;
- c) it is committed to teacher development;
- d) it rests on teacher judgement.

The third model, in his view, seems to be the ideal one; this is in line with his understanding of what a curriculum is about. In the research model the developer acts not as a creator but as an investigator. 'The curriculum he creates is then to be judged by whether it advances our knowledge rather than by whether it is right. It is conceived as a probe through which to explore and test hypotheses and not as a recommendation to be adopted.'(5)

The adoption of the research model brings us naturally closer to the teacher in his unique classroom, as Stenhouse observes:

'Experience in the field of curriculum suggests to us that the contextual variables in the school and its environment are so important that there can be no basis for general recommendations. ... Accordingly the research must aspire to situational verifiability. That is, the findings must be so presented that a teacher is invited not to accept them but to test them by mounting a verification procedure in his own situation.'(6)

CLASSROOM RESEARCH AND PROFESSIONAL DEVELOPMENT - Evelyn B. Mokhosi

Most professions, including the teaching profession, depend on research findings even if it is only to increase knowledge or to facilitate appropriate action in professional dealings. Phrases such as 'the teacher as a researcher', 'teacher evaluation', and so on have come into sharp focus over the last twenty years or so. Like most practitioners, teachers today are not only expected, but are obliged to do research in order to develop themselves as professionals.

Elliot states that one of the characteristics of a professional is the ability to discern what course of action is required in a particular case or situation. Such discernment depends on a penetrating insight into the situation; this can be gained through research. Teachers are continually required to make sound professional judgements in their daily interactions with the pupils in their classrooms and in related activities. This means therefore that they need to be constantly developing their professional knowledge and

skills, in relation to changing circumstances; they can do this through the study of many cases or even of one particular case.

The concept of professional development implies that there is a need to enhance the capacity of teachers to generate professional knowledge, in contrast to enhancing their capacity to apply someone else's knowledge. The teacher can no longer be a competent technician who simply applies general rules skillfully. As Elliot states: 'Teachers ought to be knowledge-generating as opposed to knowledge-applying.' In other words, for the teacher, educational theories should be the objects of experimental testing, and not the objects of commitment.

In his concept of educational science, Stenhouse argues that educational ideas expressed in books are not easily taken into possession by other teachers. He regards each classroom as a laboratory, therefore, and each teacher a member of the scientific community.

As was pointed out above, Stenhouse sees curriculum as a particular form of specification about the practice of teaching, and not as a package of materials or a syllabus to be taught. He states that curriculum is 'a way of translating any educational idea into a hypothesis testable in practice.' It invites critical testing rather than uncritical acceptance.

Defined like this, curriculum research and development can be the work of an individual teacher, of a school, or of a group of teachers working within the framework of a national project; or it can be the work of a team of teachers from different schools, as in the case of the LARG.

What Stenhouse is basically saying is that curriculum research and development (in his terms) ought to belong to the teacher and that there are prospects of making this good in practice - that is, in the classroom when it is viewed as the teacher's laboratory. It is therefore not enough that teachers' work should be studied: they need to study it themselves in their own situation. This is what Action-research aims to do. (The same or similar process can, of course, be called by other names).

Stenhouse identifies the characteristics of a teacher-researcher as follows:

- i) A commitment to systematic questioning of one's own teaching as a basis for development.
- ii) The skills to study one's own teaching.
- iii) A concern to question and test theory in practice by the use of those skills.
- iv) A readiness to allow other teachers to observe one's work directly, or indirectly by the use of audio and video-tape, and to discuss it with them on an open and honest basis.

Basically this means the teacher-researcher is characterised by the capacity for autonomous professional self-development through systematic self-study, through studying the work of other teachers, and through the testing of ideas by classroom research procedures.

There are three main classroom research techniques or approaches open to us as teacher-researchers. These are:

1. Classroom Interaction Analysis (C.I.A.)

This is a method of collecting data through use of an observation schedule. An observer sits in the classroom - or views a video-play-back of the lesson - and notes at regular intervals what is taking place. A well-known example is the Flanders Interaction Analysis Categories (F.I.A.C.), which requires the observer to record the action every 3 seconds, coding it under ten different headings. These can, however, be grouped into three major categories of teacher-talk, pupil talk and silence/confusion.

Many writers and researchers see this technique as a reliable way of investigating teacher-pupil interaction in general, although it gives little information about the teacher as an individual. The main disadvantage of this method is that it focuses on small bits of action or behaviour and thus generates a super-abundance of data. Also it is limited to seeing teacher-pupil interaction in terms of the transmission of information, one-way or two-way. The underlying concept is simply one of information exchange and the emphasis is on verbal behaviour. It has therefore been found of limited use to teachers in researching their own classrooms.

2. Structural Analysis

The B.O. Smith approach, on the other hand, pays more attention to the content of lessons. It is basically concerned with the logic of teaching. It focusses on strategies, i.e. a set of verbal and non-verbal actions that serve to attain certain results and guard against others. For instance, strategies that serve to induce students to engage in verbal exchange (discussions) to ensure that certain points in the discussion will be made clear, and to reduce wrong responses as students participate in the discussion.

3. Social Anthropological Approach

This uses direct observation of classroom events as a starting point in the development of theory; detailed field-notes and/or tapes are used to record events. The aim here is to uncover concepts with which to classify different classroom situations in a meaningful way. Theory is gradually built up from the examination of accumulated observation.

These and other approaches not mentioned here can be used by the teacher-researcher.

The teacher can, however, only effectively assume the role of a researcher through open negotiation with those concerned. S/he will need to explain to the pupils his/her new role of teacher-researcher and state clearly that it is to better his/her teaching and to improve things for the pupils.

A teacher who wishes to take a research and development stance to his or her own teaching may profit by the presence of an observer. An observer can be a colleague or a staff member in the same school or an outsider. Research workers, as observers, may often be more interested in building a theory of teaching than in improving the classrooms they have studied, as would be the case with a teacher/colleague observer. Where it is not possible to have an observer, an obvious recourse is to some form of recording, such as audio or video-tapes. Pupil interviews are another source of data.

Classroom research is about bettering classroom experience. The teacher-researcher must be ready to examine his own practice critically and systematically. The teacher must be concerned with trying to understand his/her own classroom better. In this context, theory will simply be a systematic structuring of the teacher's understanding of his/her work.

In conclusion I would like to point out that classroom research is not without its problems: problems in the economy of time, the problem of objectivity and the problem of securing reliable data. However, these are not insurmountable.

We can summarise the essence of this paper by saying that as no two classroom situations are identical, teachers can ill afford to depend entirely on theories based on research findings of cases and situations often only distantly related to their own. Teachers must strive to develop themselves as generators of professional knowledge, rather than just improving their skill at applying someone's else's ideas. Thus every classroom becomes a laboratory and each teacher a member of the educational research community.

Any research into classrooms must aim at bettering one's own teaching, and improving classroom experience. The tendency to rely entirely on observers who are research workers rather than teachers may need to be revised, as these are often interested in building a theory of teaching rather than in improving the classrooms they have studied.

All in all, this means that research reports and hypotheses may have to be addressed to teachers. That is, they must invite classroom research responses rather than laboratory research responses. Finally, self-monitoring on the part of teachers is important both for professional self development and for the generating of professional knowledge which can be shared with the whole educational community.

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CHAPTER 3

A CASE - STUDY AT

SEFIKA SECONDARY SCHOOL

Lomile Putsoa

Introduction

When I joined the Lesotho Action Research Group, I had only a vague idea of what it was and what it would involve. I was still a student then, but I had taught before. The memories of my early days of teaching were not happy ones, because while I thought I was teaching well, giving my students enough notes and explaining everything, I always found that they had learned very little or nothing. I was disillusioned, and I guess as a result I frustrated them. By the time I realized this, it was too late, my internship year was over and I could not make it up to them, so I vowed to work hard to improve my teaching. This is why I became attracted to the idea of Action-research. Now I wish our efforts could be of help to other teachers and that they might take it up as a challenge to try their own research in their classrooms.

The School

In July, 1984, I started work at Sefika Secondary School. It is a new urban secondary school with a roll of 292. It belongs to the Maseru Evangelical Church. The students are of all levels of intelligence. They have their emotions and their problems, and their potentials which need to be tapped. They need to be treated as individuals and this is not always easy, as the pupil-teacher ratio is high. Discipline is good. Although the school, like many schools in Lesotho, is poorly equipped, we have the advantage of being in town, where many living resources are at hand; our students are able to see and experience many of the concepts that are dealt with in the textbooks. The research began with a Form B class, continuing with them into Form C.

Action-research

At the time of writing this report, I can formulate one or two hypotheses about teaching. For example:

- Students do have the potential ability to learn widely, to explore knowledge and to look for possible answers independently;
- They can reach the levels of higher-order cognitive skills, if they are given the right encouragement.
- This can be tried by any teacher.

Before I ventured into classroom Action-research I could not make an assumption like this one. I lacked the confidence because I had never challenged my students, nor seen them in the light of human beings who could be of any challenge to me. They all bore one label: LEARNERS, while I was the TEACHER, and it never occurred to me that there was anything I could learn from them, or that it could be interesting. To illustrate this point, I invite you, the reader, to follow the cycles of 'teaching' I went through with Form B 1 (1984) and C 1 (1985). 'Teaching' is in quotes because the methods I applied were used for

direct teaching mainly in the early stages; later, as will be seen, the students arrived at a point where they could do things and learn a lot with little guidance from me.

I would like to clarify one point. The students that I worked with are like any other students who can be found in any classroom. There is a wide range of ability in the class, and what they have achieved may be seen as next to nothing by other people (I'm not being defensive), but for us it was quite a lot and very exciting. In the chapters that follow, I am going to look into the problems and achievements and compare the different stages we passed through. The sources of information on which this paper is based are transcribed tapes of lessons, assignments, tests and the analyses of what they revealed.

What is teaching?

I would like to start by reporting on my initial conception of successful teaching. It involves teacher and students discovering things together; when students find out things for themselves, they take pride in them and don't easily forget.

It is better when students do things rather than memorizing concepts in the abstract. Students should give their own examples, i.e.

Teacher A: Gives one example of division of labour, using builders.

Teacher B: Tells pupils to go out and see how people work, or to visit a cookery class. They report back, or draw a picture. The concept of division of labour comes up naturally, and they have many examples.

In such a case, teaching is not monotonous, students are enthusiastic, even dull ones. Their own experiences are the tools for learning. The teacher should help connect these experiences to the syllabus, so they see the relevance.

First or base-line lesson

My first monitored lesson was on 'The Population Explosion'. I did not expect much from the students, except some short contributions and suggestions, because in my position as a teacher-researcher I had still not found my feet. In the event, the transcripts of both the 'Population Explosion' lesson and the later 'de-briefing' session after the trip to Masianokeng show how lessons that are meant to be 'discussions' can turn out to be purely 'question-and-answer' sessions.

Another thing that can be noted from the tape is that I, as teacher, tend to leave some sentences hanging, and also that there are pauses which, unless one listens afterwards, one does not notice. This was not deliberate, and I was not aware of these weaknesses until I read the transcripts. This may frustrate the students, but I do not think that it is harmful unless there is a communication breakdown between the teacher and the students. Most teachers also make use of non-verbal cues or gestures, which help to maintain communication. However, I would

like to emphasize to my readers that sometimes teachers blame their students if the latter do not live up to the teacher's expectations and do not show evidence of learning; teachers do not realize that they may also be responsible for this failure.

Here is an extract from my first lesson. The topic for discussion was 'The Population explosion threatens the very existence of Mankind.'

T Let's take an example of Maseru. Is the population increasing fast or? (unclear) What do you think is happening in Maseru? Can you say there is population explosion? in Maseru?

SS Yes, no (low, doubtful)

T Or do you think there are still enough (inaudible)

SS No (more voices, surer)

T There is a population explosion?

SS Yes

T And as a result, if the number is increasing fast, because many babies are being born, also that people come from other, other countries and from other places, the rural areas - Do you think there is a problem, does that cause any problem?

SS Yes

T What kind of problem? What kind of problem?

G A shortage of resources, because (inaudible)

T Resources such as? Would you like to give me examples? Resources such as what?

SS (indistinct)

T The soil? Yes, what can you say about the soil?

S People build their houses, and then?

S Plough

T Others plough. And so what is the result? What is the result? What happens?

B People do not have enough fields left ...

T People won't have enough fields? Mm. Yes, people won't have enough... What about houses? What about people's...What about housing?

S (indistinct)

T Yes, they build houses. Do all of them have houses? Do all people in Maseru have houses?

S (chorus) No

T They don't. Where do they live? (murmuring) Where do they live?

G They hire places...

T Yes, they RENT houses

T That is, they live in other people's houses and pay rent. Where else do they live? Where else do they live?

- SS On the street / on the mountains (indistinct) (many pupils have views on this)
- B Others live in the mountains (laughter, confused talking)
- T Yes, some of them - some of them really live there, in (unclear) because they have no? ... They have no houses. Why did they come here? Why do all those people come here?
- (students eager to answer)
- B They are looking for jobs.
- T They are looking for jobs. Do they all get jobs?
- SS (chorus) No.
- T So this is the ... This shows that if there are too many people they will not have enough resources. For example, you have shown me that they don't have enough houses, not all of them have houses, there are no fields, there are no jobs, there are no jobs for them... Is there anything you want to say?
- G People ... they have more animals, they overgraze, that causes soil erosion.
- T She says, this people, when there are too many of them, and they all have animals, the animals will overgraze and that will cause soil erosion (students join in last phrase) it will cause soil erosion.
- So, going back to that sentence "others think that it threatens the very existence of mankind - others think it threatens the very existence of mankind" (draws on board) Let us say that this is a loaf of bread - this is a loaf of bread, and at the beginning there are only 3 people here, that this is our population. These figures are our population. And then, all of a sudden, the population just explodes. Is this loaf of bread going to be enough for all the people?
- Ss No
- T What will happen to others?
- SS They will starve / suffer
- T They will suffer and ?
- SS die etc.
- T They will die. Some of them will (inaudible) they will just (inaudible) because they will have no more food ... They will not exist, they will not exist any more. Their existence will be threatened, their existence will be threatened. Any questions? Does anyone have questions? Should we go on?
- Yes

Some of the answers were indicative of the students' potential ability to reason. For example, further on in the lesson I asked:

'Why are some countries' birthrates falling?'

At first the students could not give any answer, so I had to refer them

to an example of Lesotho in the past. Some of the reasons that were given were:

'They planned their families by making laws that kept boys and girls separate.'

At this point other students came up with different reasons that contradicted my statement:

'Having many children signified real womanhood.'

'In the older days people had many children because they had fields, they could look after them and feed their children with less problems.'

This made me realize that I had to refine my questions and ask the students for ways in which Basotho used to space their children. Some said there were no clinics then, while others stated that the husbands used to sleep at khotla. The last idea to come up was that men had many wives, so the women could afford to space their children.

Strategies to try out

Basing myself on the different problems we had identified at our planning meeting, and on what I had found out from this lesson, I decided to work on the following strategies:

- field trips
- guest speakers
- class and group discussions
- simulation games

My hope was that students' attitudes towards life would broaden, and that they would develop more effective cognitive skills. I also wished them to develop confidence and to depend less on the teacher for information.

CYCLE ONE: September 1984

Field-trip to Masianokenq

In September I took the class to the Masianokeng Vegetable Canning Factory. Then I gave them questions to prepare in 'buzz groups'. Afterwards I held a class discussion on these points. The following points are based on this lesson. The questions for discussion demanded both description and analysis. But the students responded better to descriptive than to analytical questions. For example, they were able to say what had interested them, how the trip and the factory tour had not been well-organized, and could be improved, but when it came to explaining how the factory contributed to the development of the country and how it might underdevelop both people and country, they could not respond to these problems until I started prompting them with more direct questions.

The last part of this transcript showed instances of deductive reasoning and even making hypotheses. For example, one student complained about the fact that asparagus is not a local food and should not be grown. Another met this with:

'Since most Basotho do not eat asparagus it will be exported and bring us a lot of money!'

They followed up by saying that if more asparagus is planted, the factory will develop. The students came to the conclusion that the exportation of canned asparagus would probably reduce the trade deficit. They pointed out it would help the farmers who were self-employed.

The tape also showed us that out of a class of 36, eleven students had made individual contributions, though others might have joined in the voices that came up in a chorus from time to time.

Conclusions

We could see more clearly now that although this was an active class with ideas to contribute, these students still depended largely on the teacher to lead them. Some were certainly showing the ability to reason and analyse, but they seemed to be striving always for consensus in the class, and I decided I needed to challenge them more, to extend their power of argument. And I was not satisfied that only a third of the class took part in the discussion.

Guest Speaker

Next I invited a guest speaker from the Department of Public Health to give a lecture on water-borne diseases, and afterwards I divided the class into small groups to discuss how public health work helps to develop the country. We taped three groups, and the transcripts showed that the students mainly used this time to go over the facts of the lecture, explaining them to each other, clarifying words, and so on, rather than discussing the implications for development.

B Can you read them again?

B They are water-borne diseases.

G Can you speak louder?

B They are vector-borne diseases, helmenthic diseases, sexual transmitted diseases, contact diseases

B Hm, Hm

B What is this?

G Contact diseases

B Myself, I didn't understand

G About what?

G I think it's vehicle

B Many kind of disease; how to prevent them... no, I just...

B We are coming to that

G We are coming to that point; yes we can, we can prevent them by er, treating by attacking the source

B Attack the source

G Attack the source!

B Ja!

G Er, to interrupt trans, er, transmission

B To protect host

G Host

B What do you mean by this host? Who is this host? (confused)

G I also don't know

G A host is a person or animal who is attacked by a certain disease

B Is this a 'hoost' or a 'hohst'?

G 'Hohst'

(confused)

As a follow-up I asked them to draft a request to the government, outlining the need for improved water supplies. The letters, while quite well argued, concentrated on domestic and agricultural needs, entirely forgetting the canning factory they had just visited. I concluded I must show them explicitly how to relate issues, and apply facts learnt in one context to another one. It seemed they had not yet picked up this skill.

Afterwards the consultant interviewed a group of students about the work. They told her they were often too shy or embarrassed to ask the teacher questions in class, due to language problems, and they suggested student seminars might be useful. This seemed a good way of lessening their dependence on the teacher, so I decided to continue to try to develop their powers of discussions through small group work.

Reflections

On the basis of what we had found, I began, half-consciously, to draw up some informal hypotheses, in Elliot's terms (1) and to take some action along those lines. Looking back on my notes at the time, these seem to be the ideas that were emerging:

- The students were probably not performing up to their potential level of ability; therefore I should try to challenge them more and raise their levels of cognitive skills.
- They were still too dependent on the teacher; therefore I should give them opportunities to practice learning on their own, especially in small groups.
- They often sought only one 'correct' answer; I would have to make it clear that there might be several possible answers.

It was not until the following term, however, that I formally clarified my ideas, revised my 'General Plan' - and set out my next Action steps.

CYCLE TWO: January - March, 1985

I had realized in Cycle One that students' performance was below par but I could not tell where the problem actually was. I decided to give my lessons in small chunks of distinct stages, as it would give my

students time to breathe in between, and it would enable me to put my finger on the problematic area. I amended the initial plan which I had used in the first cycle and devised a sequence of activities that I would follow:

- (a) Introduce the topic by presenting a problem, giving no answer;
- (b) Use 'brainstorming' or 'buzz' groups to motivate students;
- (c) Involve them in some action, such as role-play, simulation, debate, reading relevant literature, etc.;
- (d) Organize small group discussions, in which they can use the experience they have had;
- (e) Give written work, in groups or individually, to see what learning has taken place.

The topic was Needs and Development. The content objectives for the first sequence were:

- To get the students to understand that development should be geared to meeting peoples' needs;
- To find out what students think development means.

At the planning meeting I had with the two consultants, I proposed the following hypothesis:

'There are several alternative correct answers to a question, and the students will begin to understand this if they are encouraged to talk together in groups. They will come thus to see knowledge as open-ended.'

Practising open-endedness

I began at once to try to establish the idea of 'open-ended' knowledge. When I was introducing the topic 'The standard of living', which was to be followed by 'needs and development', I made it explicit that I expected students to produce alternative answers as long as these were backed up with sensible reasons. So when someone in class asked whether people who had bought the expensive but traditional three-legged pots could be said to have a higher standard of living than those who bought cheap modern cooking utensils, I threw the question back to the class and told them to decide. In their decisions, the class brought up the questions of social status, the cost of the pots, and the cost of the kind of fuel used, and the other kitchen equipment. They were beginning to see there was no one 'right' answer.

In the next lesson, I told my students that we were going to talk about development, but that I wanted them to tell me what development is. Students gave their ideas of development. It was like putting together a jigsaw illustration of development.

After eliciting these perceptions of development from individuals, which included social and economic aspects of development, I asked students to work in informal groups and to identify two countries, a developed and a developing or underdeveloped country, and to say why one is developed and the other is underdeveloped. (I had brought a large wall map of the world for students to look up names of countries.)

Students were able to identify such countries and support their choices with logical reasons. For instance, they pointed out signs of under-development in one country as overpopulation, poor housing and inadequate food supplies. Yet they mentioned another which they said was able to feed its population although it was densely populated, because it was agriculturally more developed than the other.

During this discussion when one group claimed RSA to be very developed I pointed out that development must also include rural people, freedom and equality, but left them to apply this to RSA. In this class, I gave no 'correct' answers, always encouraging them to work it out for themselves.

Practising Group Work

My next action step which was still geared to involving students in discussion and using their powers of arguing, was to get them into groups and give them pictures which were meant to stimulate discussions on development. Students were to study these pictures and to identify the needs and wants of the people living within the different environments displayed in the pictures. I wrote some guiding questions on the board. Students were required to say which basic needs were satisfied and how, and to say what the general problems facing those people could be. Four group discussions were recorded, while the two consultants and I moved around the other groups.

Here are comments from my field notes on ways the groups approached their discussion task. 'There was no fuss about appointing secretaries. I found one group was arguing awhile before writing anything down. I told them to note the different points made by the different members, so that these too be recorded.' We thought that this was at least a big advance on the situation found earlier, where the secretary wrote down the first thing said, which was accepted as the group conclusion without any arguments.

Later, the consultant commented on the way students worked in groups; they were by now familiar with the group discussion method and got down to their work quickly. While the consultants were moving about, they overheard the students talking enthusiastically in Sesotho. The discussions were relaxed and informal, but still on task. This contrasted with the stilted manner in which the discussions proceeded when the students were being taped, and having to speak English. The effect of English as a medium of instruction on the whole process of learning is a major constraint. Since the groups were self-chosen, but with size limited to between four and six, the groups seemed to work well, as everyone was seen to be participating. The groups were predominantly single-sex, with very few mixed groups. I don't know how other teachers feel about the issue of group composition, but I feel that if the groups are self-chosen, the students tend to do better; they choose friends, the atmosphere is friendly and relaxed and most important, the quiet ones stick together and so discussions are rarely dominated by the extroverts.

Analysis of Group Discussions

Group I's discussion was not very focussed; it jumped about. They had not noted down the guiding questions given to them, and did not discuss the problems of the people in the picture. However, they seemed to have understood the task, and they made unexpected points which they argued well, such as the following:

G 1 For a high standard of living, ... one needs to be educated

G 2 But a high standard of living can just be made by, ... maybe I'm not educated, then I take my fields, I plough, I grow some things that I need and I sell to other people, and after some time I am going to be less poor.

In this group, their statements at the beginning were very short but with time they became longer.

Group 2 also showed several original thoughts, and their arguments were becoming quite complex:

B 1 If you can take places like America, if they see that they will have more people who are suffering because of their uneducated standard they take them, and send them to the poorer countries, to live there because they know that they will survive there. They will get better jobs in the poorer countries because most of the people there, ee, are uneducated and so if these people of the country, countries like Lesotho, may think that these white people are, are more educated than some, than most of the Basotho so they may give them better jobs and even make them managers of some works, important works.

B 2 Even if they are not educated?

B 1 Even if they are not educated their country brings them to Lesotho because they see that these people will suffer there, because they are uneducated so they will, they won't get jobs there because that country, the standard of living in that country, is more higher, and this people and uneducated people cannot survive there. So they will take them to poorer countries to live there, because they are preventing them from sufferings.

The third group, while addressing themselves to the given task, showed how they could draw from their own different experiences and from general knowledge: (remember they are looking at pictures of peasants)

B 1 I think they ... China is also near this country and China is good; the soil of China is good for agriculture but what about this one?

B 2 No, these ones and this one are good in agriculture.

B 3 Lesotho is near South Africa, is surrounded by South Africa, but Lesotho is poor in agriculture and in minerals, so in South Africa there are so many mines.

B 4 Do you think these people rule themselves?

B 2 I think this country is overpopulated.

Here the students were trying to compare the economic situation of several countries, including Lesotho, and to find out reasons (including a political one) which explained the wealth and poverty they saw in the pictures. One boy asked the other members to put themselves in the place of the people in the pictures and say what they would do:

B 4 We can say they were poverty, they were so poor.

B 1 I heard that thing from the radio one day, that said the Red Cross supplied the Ethiopians with food and clothes.

B 2 If it's you, what can you do? Maybe that man is you

B 1 What about their country?

B 4 Ja, that is what I want to say, about their government

At the end, I asked students to write a story about their respective villages, showing what needs and wants were satisfied or not, and to say how their villages were underdeveloped. The students were applying the concepts they had learned to their villages, and their essays were generally impressive, showing evidence of learning, and of using higher-order skills.

The next lesson was a report back of their findings by the students. When I read their transcripts and listened to them, I realized that the students had improved greatly. I found more examples, in their answers and discussions, of chains of related facts. In Cycle One, the students had failed to accomplish the tasks they were set because they did not infer and relate facts, and apply them. Now they were arguing, and linking cause to effect; they were even adding new ideas from their background knowledge. I compared the discussion transcriptions from Cycle One with those from Cycle Two, and observed that statements made by students in the later stage were more extended.

One conclusion that I drew was that students responded better to immediate stimuli rather than when they had to refer back to past stimuli. They had a lot to say about the pictures and their discussions were more developed than their discussions following the Masianokeng visit and the talk by the guest speaker. Another advance was that the group secretaries did not write down the first thing said, and groups did not accept conclusions without argument. Perhaps they were beginning to see knowledge as open-ended.

Teacher Presentation

Initially, in my plan for Cycle Two, I had not included making a presentation, but later I realized I was facing dilemmas I had not contemplated. Did I want students to go through discussion every time before reaching conclusions, which is terribly time-consuming? Did I have to encourage them all to go in every direction, since otherwise some of them would have one point, but not another? While I had explicitly directed them to seek for alternative answers, were there still some students who were awaiting a consensus? (For example, earlier in the discussion groups some girls had said: 'No, we haven't written anything because we have not yet agreed, we are still arguing.') We teach for exam purposes as well: would all students have collected enough points to answer questions?

So I had to think carefully about the presentation: how to help the students without reviving their dependence on the teacher? In the end, I decided to summarize the students' own ideas, with some other points, but still leave the conclusions open.

This presentation was deliberately structured in an open-ended manner, to allow room for decision-making. I explained that economic growth is only a part of national development. Other parts are found in answers to questions like these:

- what is being produced?
- who decides this?
- where does the wealth go?
- is the quality of life improving for everyone?

Testing their grasp of the concept of 'Development'

Six weeks later, the students were given an exercise designed to test whether or not they could apply these criteria for development to a given situation. The answers also revealed how far the students were able to formulate conclusions in general or in abstract terms, or whether they remained at the concrete level of particular examples. They read a description of 'Akir-Fadius' (which is, of course, Suid-Afrika spelt backwards!) and they were asked to say whether they thought it was developed or underdeveloped. (see p. 28)

Two essays are reproduced below. Essay No. 1 quotes copiously from the story, but after the first two sentences does not use this to support the argument. The writer looks only at the evidence for underdevelopment. There is no sign of drawing conclusions nor of using more general concepts. This scored at Level 1.

When writers showed some ability to go beyond the evidence, to use their own words and to summarize and infer, they scored Level 2. Those who could use higher-level concepts to discuss the situation, such as 'standard of living' and could draw general conclusions such as 'only the urban areas are developed' scored at Level 3. Level 4 was reserved for those who could apply some of the general criteria about development to this country, particularly those mentioned in the class, and to evaluate it against such criteria. These students would have noted also that there was contradictory evidence, and tried to give a balanced conclusion, or an open verdict, as does the writer of Essay 2.

We were pleased to find that as many as 11 students reached the Level 4 standard, at least in some measure; ten students satisfied the criteria for Level 3, seven scored at Level 2, and eight at Level 1. Only one student was unable to express himself clearly enough to score at all.

Essay 1

I say Akir-Fadius is underdeveloped because there are some slums in this country in the towns. Oil has to be imported if it is developed they is nothing thathave to imported and there are no industries that made T.V. sets and aeroplanes. over 25 million people, about 18 million people do not own any big farm, factory or business, some of them have gardens where they can grow some mealies and raise a few animals but it is hard to make enough money this way, so most of them go to look for jobs in factories and shops.

In the rural areas women walk long distances to fetch water from

dirty streams, and there are no latrines, many children die of diseases such as T.B. and diarrhoea. In the rural areas there are not better education than in the towns. not many people are allowed to elect the government only about one-quarter of them, and three-quarters of the people are not allowed to vote in elections.

Essay 2

I'm not sure wheather this country is developed or undeveloped.

I can say it's development is not for the hole country but only for the cities. And again I can say the country is developed because at least 7 million people are owning farms or factories and this means that there are many factories and many people are employed and if so it means many families have a better standard of living.

The country is developed in such a way that the are big office buildings and banks, lorries and buses and shops full of luxury goods, some pople live in large, beautifully furnished houses and they travel from town to town by railway, by plane or along tarred roads and all this transport facilities show development. This country is also rich in minerals they mine and export. And the factories are producing expansive goods which they get plenty of money if exported. It is rich there are large farms to produce food for people in the country. And about 70% of people in the country can read and write I think there is better education.

This country again, I can say it is undeveloped because some people are working inthe farms while they could use only machinery. This country is mostly underdeveloped in the rural areas where people have no clean water, they walk a long way to fetch water from dirty streams and there are no toilets and many diseases are spread and people get T.B. and diarrhoea. And as so many children die, this is where we can see that this part of the country is completely underdeveloped. They die, because there are no good or even no medical facilities, there is no transport for the people at least to send their children to hospitals in cities so such things can make me say the country is underdeveloped.

This country is not developed because the government is choosen by rich people, people who own land, factories and other buisnesss and then other people are forced to obey the law.

Akir-Fadius is still developing more, it wants to make more factories and more people will work and if they have enough money they may also open their business and again because of the scenery, toroist also bring more money to the country then I hope it will develope more especially in the rural areas. And slums may be beautified to be part of a city.

HOW FAR IS AKIR-FADIUS DEVELOPED?

Here is some information about an imaginary country called "Akir-fadius". Read it carefully. Decide whether you think it is "developed", or "underdeveloped", or whether you are not sure.

In Akir-fadius there are 25 million people, in an area of just over one million square kilometers. There are ten large cities; in these you will find big office buildings and banks, lorries and buses, and shops full of luxury goods. In these towns, some people live in large, beautifully-furnished houses, while others live in slums. One can travel from town to town by railway, by plane, or along tarred roads.

There are mountains in some parts, but about half of Akir-fadius is good farming land. There are many mineral resources, such as iron, uranium, gold, silver and copper. Oil has to be imported. Many men are employed in the mining industry. There are also many new factories which produce goods such as clothes, cars and refrigerators. These factories are owned and run by businessmen. Recently, the government decided to build some factories to produce guns, and make more electricity. These new factories are owned and run by the government. Akir-fadius does not make its own TV sets, nor lorries, nor aeroplanes; these all have to be imported.

In the rural areas, there are many very large farms which produce all the food that the country needs. These farms are owned by just a few people. The farmers employ men and women to work on the farms, although now much of the hard work is done by machines.

There are about 18 million people who do not own any big farm, nor any factory nor business. Some of them have gardens where they can grow some mealies and raise a few animals, but it is hard to make any money this way, so most of them go to look for jobs in factories and shops. About 30% of the men are unemployed in Akir-fadius.

In the towns there are water taps and sanitation systems, even in the slums, but in the rural areas women walk long distances to fetch water from dirty streams, and there are no toilets. Many children die of diseases such as T.B. and diarrhoea. About 70% of the people in the country can read and write; the schools are much better in the towns than in the rural areas.

Only about one-quarter of the people of Akir-fadius are allowed to elect the government. These voters are, generally, the people who own the land, the factories and the businesses. Three-quarters of the people are not allowed to vote in elections. However, everybody has to obey the laws which the government makes.

Many tourists come to Akir-fadius to enjoy the sunshine and beaches and to climb the mountains.

YOUR VIEWS Now say whether you think Akir-fadius is developed, underdeveloped, or whether you are not sure. Explain carefully why you give that answer.

Students' Views

For 'triangulation' purposes, one of the consultants interviewed some students at the end of this cycle. His task was to find out:

- whether students thought they were learning well when left to find out their own answers;
- whether they thought they learnt well from the teacher's presentation;
- whether they preferred class or small group discussions.

The consultant added to this by asking the students what they would do if they were teachers; that is how best they could teach. The students said they preferred to be left to work in groups. They said they could remember things better when they had discovered them for themselves and discussed them. They also averred that they did not want lessons to be held in Sesotho; the consultant had observed how much more fluent and active were the discussions when the students were speaking Sesotho in their small groups, while the English discussions were slow and stilted, so he had asked the students for their views. But the students argued strongly for the necessity of learning English, and for its use as a medium of instruction.

Reflections

At the end of this cycle I was pleased to see that my efforts to work along the lines I had set out in my hypotheses and 'Action-steps' were beginning to bear fruit. However, I was still concerned about the students who did not verbally and actively participate in class and group discussions. I wanted to involve them more, and I felt it was my responsibility to find out what might be making them passive. As the teacher I felt partly to blame for this passivity, for I ought to find some way of getting through to all students.

Much as I wanted to create independent students, time was becoming a constraint. We had to cover the syllabus, and if students are given too much time to discuss, it may take too long before they reach a conclusion. Yet I realized that at times, we the teachers, talk so much, and do not give students time to express their opinions, and so they tend to sit back because they know that the teachers are there to provide answers. Or else they shy away from saying anything, lest they make mistakes.

CYCLE THREE: May, 1985

With these points in mind, I planned the next sequence very carefully. Two specific 'Action-steps' were to be:

- (1) To try out new methods of building independent learning such as investigation out of school; private reading of the textbook, and a simulation game.
- (2) To involve the passive students I would select them for tape-recording in small groups.

At the same time I was continuing to use the overall pattern of sequencing the teaching-learning activities that I had formulated at the start of Cycle Two. I was not yet at a stage where I could

say whether it always worked or not, but it seemed to help me to organize my teaching better.

Learning activities

The content for these lessons focussed on ways of increasing productivity (Section 5 of the J.C. syllabus). The lessons started with students' own visits to the local market and hair salons near the Bus Stop. They were to look out for 'division of labour' and ask questions which would help them find out how and why division of labour was necessary for increasing production.

After this exercise I assigned them to read Chapter 2, 3 and 4 of Producing More (Unit 5 of Development Studies for Lesotho). These chapters deal with specialisation and division of labour, the Industrial Revolution, modern technology and mass production. These are purely economic terms which in many cases may be too abstract for easy comprehension, and students may require a supplementary presentation by the teacher or resource person. It should be noted that in this case the students got very little help from me, and had to learn independently. What I did was to make a list of 19 questions, typed as a hand-out. I asked the students to answer these as they were reading, and that if they did not understand, they should put '???' in the margin of their exercise books. I took in the homework, corrected the answers and noted where the problems lay; in the next lesson I went through all the questions that had been marked '???' to clarify the answers. The questions helped me to focus their attention, and I found that explaining the concepts was a lot easier since I already knew what the students' problems were. For example, to clarify 'modern complex technology' I brought some pictures, and then demonstrated, in front of the class, how much more quickly one can slice carrots with an electric vegetable grinder than with a knife!

Group Discussions

The next lesson was devoted to small group discussions again. Our nine groups were given three different topics to discuss:

- (1) 'Using information from the text, and your own experiences, discuss whether "specialization" is necessary'
- (2) 'In Lesotho, most farmers use their labour and simple technology, but in South Africa, the farmers use improved technology. If you were to make a choice, what would you rather Basotho farmers used, and why?'
- (3) 'Should mass production be encouraged or discouraged?'

Four groups were recorded and their discussions transcribed. Three of the groups were made up of those shy introverts who seldom spoke in class. When I listened to the tapes, I was very pleased to hear how well they had done.

In the first group who were discussing 'specialization' the members all contributed to clarifying the issues. They were no longer trying to come to a quick consensus, and they kept the discussion open. When they started, they used the book as a reference, and then began to develop their own ideas, drawing examples from their own experiences. They did not, however, reach the stage of making abstract generalizations about specialization. One girl complained she was confused: perhaps she wanted them to reach a more definite conclusion.

- It is necessary. I can say that because it makes production better and quicker.
- But do you think that?
- And I think it is necessary and it is not necessary, ja, because if you're specialized er, in one thing, in let's say er- in driving, let's say driving and you are able to drive but you're not able to- to-
- To look after a car if it is broken.
- Not able to look after your car if something is wrong with it, but if you are specialized in many things, you'll be able to do any kind of work you want to do.
- You can not specialized to all the things.
- Yes, but at least - may be three or four.
- How can you specialize to do three works?
- I can specialize, I can specialize to drive and to be a mechanic. To drive and be a mechanic is very simple.
- Ache, you can not specialize to be a teacher and to be a nurse, you can not.
- I agree and disagree.
- I disagree because the job can not change easily.
- And I- I disagree because everybody has his talent or her talent to do er- some works, some jobs, so God created a person to do only one kind of work.
- Let's see, Tsili, specialization is necessary because if you're- you are teaching maths and Lieketseng English, Lieketseng is not able to teach us maths, you are not able to teach us English, specialization is necessary.
- May be Lieketseng is absent, who is going to help?

The second group of quiet girls also had a long and voluble discussion on specialization. They had some problems with the concepts - perhaps due to weaker language skills - and they also were unable to rise to an abstract level or formulate generalizations. They discussed the topic in very concrete and practical terms. They kept coming back to the money one earns as a specialist, ways of ensuring that one had two ways of earning a living, what they would like to be, whether specialists or not, and how they could switch jobs if the need arose, i.e. could they become a taxi-driver if they got tired of teaching. They quoted the case of a village tailor monopolizing the business of dress-making in contrast to dress-makers in town who have to compete with shops. They talked about some specialists failing to get imported raw materials and thus having to starve. But at least they had all participated well, and I was pleased to note that they too could accept alternative answers - 'I think they are both right' says one - and could note inconsistencies in another's argument:

- You say you'll be a lawyer and nothing else, yet you disagree with specialization

The third group - of quiet boys - were supposed to discuss 'modern mass production', but they did not get far, stopped and started the tape

several times, and seemed to be struggling with language.

The fourth group was discussing the choice of agricultural technology that can be appropriate in Lesotho. In their discussion they made some comparisons of technology, but when they presented their report in class they merely listed methods of improving farming, and the class was sharp enough to complain and state that the group had not addressed themselves to the given task.

Two other groups reported their findings back in class, and I was able to estimate the quality of their discussions from these reports. Both had been discussing what technology they recommended for Basotho farmers. The two presentations were quite good, but different. The first group was for improved technology. Their reasons were that the farmers' work would be quick and easy, fertilizers would restore soil fertility, Lesotho's water could be harnessed and used for irrigation, and electricity could be used to heat the poultry house.

The second group's presentation resulted in a heated argument and controversy. They thought that it would be better if Basotho farmers continued to use simple technology, until they got rich and could afford to use improved machinery, though they said high technology could be used in 'projects' to produce more goods. The arable land, they said, is too small for complex machinery, and the topology made it difficult to use. But the class felt that it wasn't right to use simple technology in the present situation because the complex machines would produce more within a short time. They thought the machinery could easily be used in the Lowlands.

This lively debate showed that the students were treating knowledge as 'open'. They were confidently expressing different views which they had developed out of their own experience. They were no longer looking to the teacher to give them the 'right' answer. They had responded to my challenges and were taking steps towards independent learning.

Field trip to Loti Brick

Next the students visited Loti Brick factory in Ha Thetsane. The visit was followed by a general report. Before we left for Ha Thetsane I asked the students to make up questions and hand them in, but they never did so, and since I was pressed for time, I could not chase them. I do not think they asked many questions, but they seemed to be following the explanations well. Unlike when they visited the Cannery, they were put into smaller groups, and so were able to get more information.

Before I start on a description of the report-back session, I would like to state a few points. First, I would like the reader to note the difference between the Masianokeng de-briefing session (see page 19) and this one. They both included descriptive and analytical questions, but in the first, knowledge was treated in a much more 'closed' way, while the second shows how we were moving towards 'open-endedness'. By this time I had realized that when I gave students questions like 'How does the factory (or the Public Health Department) help towards the development of the country?' I was already structuring their answers; they were directed to saying that it did so, in such and such a way. I was now trying to let students explore ideas in a freer way.

The Loti Brick report-back session was not structured. I did not

know, and had to find out, how much the students had learned, how much they could relate and explain. Their responses would spontaneously lead to more questions. How much would be covered during the lessons would also depend on what and how much students remembered and were ready to contribute.

In contrast to the Masianokeng report-back session, after the Loti Brick visit the students' contributions initiated much more discussion. The major improvement was that the students were able to relate the concepts they had recently learned to what they saw at the plant. For example, when the teacher asked what they had to say about the plant, one girl said she noticed that improved technology was used and it was a good idea because it enabled increased production. I suggested they do further research by comparing the methods of production, quality and amount of bricks produced at Loti Brick factory with the small scale brick plant called 'Liteneng' next to Lower Thamae.

Students showed more reasoning; they were making more inferences from what they had seen. They even seemed to be using those higher order skills that we had noticed in the 'Akir-Fadius' scripts, of generalizing and abstracting. Some students said they had expected to find a lot of people employed there, whereupon one boy surmised that in time to come, there would be less and less people employed because the factory would buy more machines and they would have to dismiss some of the people who were already hired; he had deduced one of the bad effects of high technology. I then explained how increased production may lead to higher profits and more investment, and illustrated the concept of 'wealth trickling down'. I continually stressed that people should identify two sides of a problem; this is an important aspect of 'open-endedness'.

Another student suggested, on the basis of information he had picked up, that the factory would do even better if it had its own transport. A further point led us to discuss the advantages of locally-based industries, and to give examples of factories that use local resources. This revision of an earlier topic in the process of teaching a different topic is an example of the 'spiral' learning of concepts.

Looking back at the way I used to explain, and the kind of information I imparted to the students, and then looking at the skill I now used to expand on a given answer or question to explain new facts, I see it as an improvement in my teaching. For instance:

T 'Where is the machinery from?'

S West Germany

T Yes, the machinery comes from West Germany. We haven't come to this yet. But I will refer to it later on. I'll use this example when we come to the topic of aid.

The money that bought the machinery was a loan given to LNDC, because the money came from West Germany, the machinery had to be bought from the Germans. It could have been bought from other countries, maybe at a cheaper price. And there is an expert. Do you know what an expert is?

S No

S Yes

S Specialists

T Specialists, yes. The person who has to look after the machines is from West Germany, with time a Mosotho will take over from the expert.

At the end of Cycle One I had realized that the students needed to be challenged. This time I made sure that my questions would encourage reasoning, such as looking for the effects of a particular method of production. What I would like to emphasize to the reader is that challenging questions may both stimulate thinking and enliven a lesson that would otherwise follow the same dull course.

Simulation Game: applying concepts

After hearing the students' discussions and studying the transcripts I felt the class was ready to prove whether they could apply these concepts and principles to a new situation, which Hilda Taba defines as the highest of her three levels of thinking among school children. (2)

I planned a lesson where the students would be required to apply the economic concepts they had learned. To this end, I used a game called 'Making and Improving' (3). It is played in groups. The idea of the game is to manufacture 'goods' out of paper, sell them, and acquire 'wealth'. To do this, each group must buy 'capital goods' and 'raw materials' and use appropriate 'methods of production'. (The game is described fully in Appendix A)

The game was followed by a report-back session, and I would like to quote extensively from the transcript to illustrate the kind of analysis which ensued:

S 1 We bought one pair of scissors, one pencil, two sticky coloured papers and an ordinary one.

T Well, before you go into that, I see there's someone who left your group and joined another, why did he leave?

S 1 He didn't understand our budgeting.

S 2 We sold er- two cars, we buy two more scissors and one pencil and two ordinary papers, so we produced more cars.

T Did you produce any other thing besides the cars?

(They were supposed to produce cars or TVs or both. but cars were more expensive.)

S 2 No, we produced cars only.

T How did they work?

S 2 Everyone was doing his type of work.

T What kind of work? Did you do the same things?

S 3 No madam

T What were the others doing?

S 3 Others were cutting stars and others were drawing more cars, those sort of things. When er- the car is finished we didn't wait, we sold it.

T When you started, did you all have something to do?

SS No

T Why?

S 3 There were not enough scissors and papers and pencils.

T So you realized that if you sold your cars and bought scissors etc. more people would have something to do.

When all the groups had reported, the teacher addressed all the students and challenged them to expand and relate. Here is an extract:

T Where did you go wrong and in what way were you clever?

S Specialization

T How did you specialize? In what sense were you specialists?

S We were specializing because we did not want to produce TVs, we were used to making cars.

T What else?

S I think er- may be this group went wrong, (referring to the poorest group). If they make one or two televisions they found it was wasting their time, and they bought a car template and produced cars. They worked slowly.

S The bank had gone bankrupt.

T Did you go bankrupt? (asks the bankers)

S Yes, because people came to sell things not to buy.

T One group wanted to sell its wealth in terms of money and when they realized that time was almost up, instead of buying they kept selling and wanted to sell everything. Imagine if the rich countries were to stop producing and start selling, there would not be enough money to help exchange produced goods with. What did we say one of the functions of money is?

S Money is the medium of exchange.

T So this group failed to put that into practice, so it was difficult for the other groups to exchange what they had produced for more raw materials.

How did people get work to do?

S We bought scissors.

T What do you call these scissors in Economics?

S Capital

T So people increased their production and got more capital so that people got what?

S Jobs

T Yes, they got employment, this is what a clever country would do. This other group had money but decided to keep it there, so we say they were not doing what? Go back to Unit 3

S They were not investing.

T Yes, they were not investing their money. They didn't make use

of the resources they had and could not employ all their people. About the groups in that corner; they talked more than they worked. They said they were making decisions but it is obvious they did not put their decisions into practice. The groups that were producing cars only produced more. What do we call that?

S Mass Production

S And there were tsotsis (thugs)

T In this system people were competing and they were striving to be better so they resorted to stealing....

The discussion continued, then I asked the class to reflect and say what they would do if they were to play the game again. Among the things they mentioned were:

- divide the labour
- plan better
- stop arguing (i.e. political stability)
- improve services (bank services; the bankers, it was claimed, were clumsy and too slow)
- ensure that those who are good at cutting/drawing would do so (using skilled labour)
- add value to the goods to be marketed (e.g. sell cars with stars on them)
- not misuse resources (use up all the paper)

They showed that they had noted most of the relevant points about stages of production, factors of production, and the other economic concepts they were supposed to apply.

Testing Higher Order Skills

To complete the cycle, the consultant and I set the students a test. I'd like particularly to mention two questions that appeared in this test.

Version A

Lesotho in the year 2085

Lesotho is not yet an industrialized country. But many people hope it will become one.

Imagine it is now the year 2085, a hundred years from now, and Lesotho has become fully industrialized. What will the country be like?

Describe what you think Lesotho will be like when it is industrialized explaining all the changes that will have taken place.
(Write about 15-20 lines)

Version B

The Pitso

Imagine you are at a pitso. A politician tells the people:

"If you vote for me I will turn Lesotho into an industrialized country in one year!" The people around you cheer, and are happy. But you have studied development, and you don't believe the man can do this.

You decide to make a speech at the pitso. You will explain to the people all the reasons why it is difficult for Lesotho to become industrialized in one year. But to give them hope, you also point out the things which will help Lesotho to become industrialized in the future.

List all the points you will make in your speech. (You need not write an essay, but write full sentences for each point)

The purpose of the questions was to make the students use their imagination, and to apply their knowledge to the real world. These questions also test higher order skills such as deductive reasoning and the ability to apply the concepts they have learned, like industrialization and development, in order to make some kind of judgement. In the 'Pitso' question, students would have to produce arguments on both sides: this is a sign of open-endedness, which had been a main aim of my action research.

To illustrate the level of the students' achievement, here are just two extracts. One of the effects of this action-research has been to narrow the gap between the bright and the slow learners. The range of achievement between the two students whose essays appear below was at the beginning of the year wider and much more distinct.

Extract 1 (The Pitso)

I would say:

Lesotho won't be industrialized in one year because:

1. We haven't got sufficient finance.
2. We lack raw materials.
3. We may also include lack of land because industry need to be far from the people's lives to avoid air pollution.
4. Another point is we can not have heavy industries that produce more and expensive goods, we only need to have light industries that produce less and cheap goods, because we are a small and depending country so what about if our masters refuse to help us with their capital, as they would only like us to buy finished goods from them with a very high amount.

Again I promise that Lesotho may become industrialized if only this could be done:

- Actually Lesotho has a lot of minerals, e.g. diamonds. If only this can be dug out as we may be industrialized at the future time.
- If only Lesotho can make better education for more people to learn and become advisable to the country by having ideas.
- If only Lesotho can try to invest money and open mines, especially because we have a lot of labour.

Extract 2 (The Year 2085)

The country will be rich because industries bring money in the country by things which are exported to other countries and that money will be used to improve some buildings, to create some roads to improve Lesotho.

Lesotho would have a large population because other people from other countries would come to Lesotho to look for work. There will be large population especially where there are many factories, may be at the towns others will come to steal and forget culture.

Lesotho will create some jobs for their own people, most of Basotho will not go outside the country to look for work they will remain and work in their own country to improve, most of Basotho will be rich and make their own businesses.

Most of Basotho children will go to schools and become some nurses, teacher and farmer and improve their own country.

Conclusions

I was very pleased at the end of this cycle by the way the activities had gone, and by the reactions of the students. Some success had been achieved. However, the exercises and methods described in this paper are not a panacea for all classroom and learning problems. The whole idea of this case-study is to make teachers aware that with determination something can be done to improve the situations we find in our classrooms. The results of such efforts will benefit both teachers and learners, make teaching a worthwhile activity, give students a broader outlook on life, and help them to become independent, enthusiastic and responsible human beings.

I would like teachers to take up from where we left off and improve on our work. This particular case-study is finished but I for one, still hope to continue with classroom Action-research.

References

1. John Elliott, Action-research: A Framework for Self-Evaluation in Schools (Working Paper No.1 Schools Council Programme 2, TIQL Project, 1981)
2. Hilda Taba et al. A Teacher's Handbook to Elementary Social Studies (Addison Wesley, N.Y., 1971)
3. Robin Richardson et al. Learning for Change in World Society (World Studies Project, London, 1974)

APPENDIX A

MAKING AND IMPROVING

Purpose

To provide an opportunity for students to experience nonverbally some basic economic concepts such as 'raw material', 'investment', 'capital', 'manufactured goods', 'currency', 'division of labour', 'value added', etc. The activity also provides practice in quick decision-making, in discussion skills, and in seeing a problem as a whole rather than in fragments. It is enjoyable, and hence contributes to motivation. In a more elaborate form it dramatises some important aspects of world trade.

Preparation:

It is necessary to have some pencils; some sheets of ordinary white paper; some sheets of sticky coloured paper; some pairs of scissors; and a stock of home-made paper money.

The teacher also needs to prepare in advance four types of template, made out of stiff card. The four outlines for these templates are:

a saloon car; a television set; a television screen; a star.

You need as many copies of each template as there are groups taking part in the activity. (Hence at least two copies of each template.) The template for the car should be roughly twice the area of the template of the TV set.

Procedure

At its simplest, this activity is no more, so to speak, than an enjoyable game. It could be played at a party, for example, and people would enjoy it without noticing or caring that it dramatises some basic economic concepts. The procedure is as follows:

1. There are two or more teams. A team could at a pinch be a single individual. Better, it is a group of 4 or 5. There is also a 'market-place', which needs to be represented by at least two people.
2. Each team is given 20 units of currency in paper-money, a buying list, a selling list, and a set of rules. The lists and rules should be explained and discussed orally before starting, so they are entirely clear.
3. The buying list is this. Templates cost 4 units each. Scissors and pencils cost 3 units each. Sheets of sticky coloured paper cost 2 units each.
4. The selling list is this. A television-set cut out of white paper is worth 1 unit. A white television set with a coloured screen is worth 2 units. A car cut out of white paper is worth 3 units. A white car with a coloured star on its bonnet is worth 4 units.

5. The rules are these:

- (i) There is first a discussion time of 5 minutes during which each team can decide what it's going to do.
- (ii) There is then 15 minutes during which the teams can buy and make and sell. All buying is from the market-place and all selling is to it, at the prices stated above.
- (iii) At the end of 15 minutes the winning team is the one which has most 'wealth'. This will be worked out from the prices stated above.
- (iv) It would of course be cheating to use paper or pencils other than those bought from the market-place.

Discussion

There is much to discuss and follow up. These are some of the main questions which the teacher may wish in particular to raise and explore:

- What were the methods employed by the winning team? Did they win through good luck, or through good management? Either way, how did they make the decisions they did? Did they behave in ways which other teams would describe as selfish or unfair?
- How did students feel about the jobs they found themselves doing? What were the most interesting and enjoyable jobs? Did everyone actually have a job? Or were there, so to speak, 'pockets of unemployment'? Were there some 'human resources' being wasted? How did the people concerned feel about this?
- What aspects of the real world were dramatised? For example, what is the meaning of terms such as 'capital', 'investment', 'raw material', 'mass production', 'manufactured goods'? What, in the real world, do the templates and scissors represent?
- A fundamental activity of human beings to take raw things out of the planet, and to process them in some way, and to consume them. But who decides what should be taken out ('extracted')? And how it should be processed? And who should consume it? What are the different ways in which different societies have arranged these matters? What are the main ways in which, actually in history, human beings have found raw materials, and bought, borrowed, begged or stolen raw materials?

Acknowledgement

This taken from 'Learning for Change in World Society', edited by Robin Richardson and published by the World Studies Trust, London, 1974

CHAPTER 4

A CASE - STUDY AT L.I.F.E.

'Maisang Seotsanyana

Introduction

I teach at L.I.F.E. Secondary School, an urban school which is located close to a busy road. Noise from the traffic is one of the most disturbing factors to a newcomer to our surrounding area.

All those engaged in teaching believe they are helping students to learn. 'What does learning look like?' (1) How can we be sure that we are helping pupils to learn if we have never stopped to try and think about what learning looks like? Our task as teacher-researchers in classroom situations or as participant observers is to collect data that will confirm or refute the hunches we have about teaching and learning situations. As Thomson says: 'Participant observation informs judgement and intuitions about how children learn and shows what the critical moments in the learning process are'. (2) These lead us to formulate hypotheses which will guide the research we undertake into learning. It is reflection on our teaching that will inspire the action we take.

The importance of working as a group cannot be over-emphasized. The sympathetic listening to one's account of classroom experiences, and the advice given by other group members gives one an immeasurable support in this type of research. It was consoling to find that one is not isolated in the problem situations one identifies in one's work. This was even more so for this research group as we came from schools which used different methods of screening pupils for admission. One could say probably that our mutual sympathy arose because we were teaching and researching in one subject, but my belief is that the learning problems that face the pupils are similar regardless of the subject being studied. Differences may be here or there, but there are similarities also.

My efforts in this research project are not necessarily going to give an answer to this crucial question about learning; that remains a challenge to all those engaged in teaching and learning activities. The teaching strategies which have been explored, and the hypotheses made are also open to criticism.

When I accepted the invitation to become one of the teacher-researchers in the teaching of Development Studies in Lesotho schools, I may have been influenced by the hope that my involvement in this type of research is going to improve my teaching, that the problems that face me in my teaching may be overcome, and that my efforts would be found useful to someone who is also involved in the task of teaching. The invitation came at a time when I felt professionally challenged by one of the classes I was handling. It was a Form B streamed class, from which the most able children had been 'creamed off'. I was feeling quite depressed about this class.

The methodology used in data collection was observation, with the

help of the use of audio-tapes. Two observers were involved. The teacher, as a participant, may not be able to participate and to observe everything that goes on in class at one time. The need for an outside observer, in this case the research consultant, is for the teacher to be able to find another person's views on her work. The outside observer makes it possible for 'triangulation' whereby a teacher also finds out the feelings of the pupils. It is necessary for the teacher later to sit back and listen to the lesson recordings, alone or with the observer, or with the pupils.

CYCLE ONE: August-September, 1984

This was the beginning of a new term, after a few weeks' holidays. Before the holidays this group, together with other C's and B's classes, had been addressed by a team from Mines and Geology on rocks and mineral resources of Lesotho. The class was assigned to read some work in their textbooks. My assumption was that the talk and the assigned readings could lead to a good class discussion. This would be taped as an exploratory, or base-line, lesson to provide preliminary data.

The Base-line lesson

When listening to the tapes, and on reading the transcripts, I found out that there was very little pupil input. There were long pauses. This is the behaviour pattern which concerned me deeply about this class. The research consultant's views were that she found the motivation low. She had counted only 39 pupil speech acts. All of these were in response to questions, and each contained a single idea only. She remarked about the long pauses. It was only in the last five minutes that the students became eager to answer, when a familiar question was asked on 'economic uses of stones'. She believed that possibly some visual aids in the form of stones could have helped. But as this was after the students had been addressed on rock formation, I thought that they could have at least asked questions. She also observed that the guiding questions for the discussion were all closed. We both assumed that another problem may have been that the students had not read the assigned work.

I also realized that the time limit had its own effects. I believed that due to the long holidays pupils could not recall what they had learned from the guest speaker from Mines and Geology.

Conservation of Natural Resources

My next step in collecting evidence about the passivity behaviour was to call another guest speaker from the Conservation Department in the Ministry of Agriculture to address students and to show slides on National Parks and Conservation Work. I could not manage to have the class addressed alone, and as a result all the B's and C's were addressed together in a hall.

The students showed a lot of interest in the lecture and the slides about the National Park, but the Form B's did not ask any questions. I was enthusiastic, and I believed that our next discussions were going to be full of students' activity.

Small group discussions

The lesson that followed the lecture was a small group discussion.

The groups in the class were self-selected. I had failed to move some girls from the group which was rather big, it had eight members. These girls did not like to join a group of boys who were four in number. I believe that one learns better in an atmosphere where one is comfortable. I therefore left this group as it was.

Two groups were taped. The other groups continued as usual to make notes of their own discussions. I had been using small group discussions before. But I had a problem group of girls only, who would not speak in my presence. The pattern of group work before I started taping discussions had been that when I worked with one group, by the time I got to other groups either they would be through, or they would wait for me to assess the work they had done, and after my remarks they would continue. I was interested in how groups of students working together came to agreement about a point.

The questions guiding the discussions were open. This was deliberately done. They were not the type that require recall only. For example:

- a) Why do we have to study about vegetation and wildlife?
- b) Do you think the Sehlabathebe National Park is a good idea? Why?
- c) If you had been using land which forms the Park, would you be happy about it? Why?

An extract from the girls' group discussion:

Together: Why do we have to study about vegetation and wildlife?

S. By vegetation we mean all the plants, for example, trees, flowers, grasses and crops. These are, these are an important resources, and vegetation will renew itself if properly cared for.

(they stop the tape and start again)

S We have to study about vegetation because we can not live without vegetation.

(they stop the tape and start again)

Consultant: Just talk ordinarily, try and forget it there (referring to tape)

(sounds of pages being turned)

S Wildlife, about wildlife

(lots of whispering)

S We have to study about wildlife because its

S Wildlife: We have to study about wildlife because this is important to us to know about wildlife. What type of

(whispering in Sesotho)

S If you have been using

(long silence)

S Would you be happy about it and why?

The extract shows the limitations of the group. The first response to the question was not challenged by other group members. These stops indicate that the group prepared their answer for the tape and then read it. After they had been told not to stop the tape, there does not seem to have been any success.

Language appears to be a problem also. The fact that they read the first question together shows that they had not allocated roles to group members. Usually when students work in groups one reads out the questions, and another writes the answers.

We realized that these girls may have been shy about the unfamiliar tape-recorder. But the other group, who were more at ease with it, showed a similar pattern of discussion. An extract from the mixed group:

- G Why do we have to study about vegetation and wildlife?
- B We have to study about vegetation and wildlife because they are important resources of Lesotho and other countries.
- B Do you think that the Sehlabathebe National Park is a good idea?
- Yes
- B Why?
- of Lesotho and other countries
- (question is repeated)
- B It is because we kept wild animal so visitors from other countries can see them.
- B If you had been using the grazing land which forms the Park, would you be happy about it?
- (long silence)
- B I am not going to be happy.
- B Why?
- B I think because we're no more going to, to have the grass which we are going to feed our animals on.
- or domestic animals
- B Our domestic animals.
- Do you suggest cows or others?
- G We agree with you.

From this tape I realized how this group handled a discussion and how they actually produced notes for class presentations from working in groups. I was surprised to find out that students do not engage in discussion, that they are satisfied by one answer offered from the group and they immediately pass to another point.

Another thing is that though collaboration in a group is a desirable fact, it may however hinder a discussion. This is indicated by the group's response to the highly controversial question on land use, to which one group member says he would not be happy about loss of land for one reason, and one girl says: 'We agree'. This statement is accepted by all. Barnes and Todd, on this issue of collaboration, say that 'It seems

that groups which are too pre-occupied with consensus are likely to learn less from their discussion'. (3)

Later when these groups were asked what they do when they discuss, the girls' group said they shared work, or they corrected mistakes, or they worked together. The mixed group said they 'agreed' or 'They decide what they were going to do.' This indicates the students' view of what they think they are supposed to do during the time for discussion. My assumption that in a discussion pupils will investigate all possible answers to a question or a situation was not shared by my groups.

Report-back

The report-back session from these group discussions was also taped. It was intended that the reports would encourage some class discussion. But students were reluctant to speak and there were long pauses. (There may have been some shyness at this point due to the presence of the consultant and the tape-recorder.) The reports produced by the small group discussion were short and stilted. Some of the secretaries did not even read the full report (we photocopied the written reports to compare with the transcript).

Reflections

Later I reflected that perhaps these questions did not catch their imaginations. Quite likely these children from the Lowlands could not visualize the Park, nor understand the issues involved. The conclusion I draw is that we must be sure the students really can grasp the concepts before we ask them to discuss and apply them in an open-ended way.

When I studied the tapes and transcripts of these first lessons, I was surprised by the limited amount of the student input. I also discovered that in some cases I had repeated or rephrased, not because I was asked to do so, but because I was afraid of the pauses that were there. In the next lesson, I left the silent pauses outstanding, and I then played the tape to my students. They did not like the pauses either. They became aware that they had to take the initiative in participating.

Discussion on 'Population'

When the class was handling the topic on population, I invited a guest speaker to address the Form B's, this time only the Form B2. Both the research consultant and I agreed that the lecture was largely above the pupils' ability. As a result, the follow-up lesson on the lecture was organized differently. Students were assigned in groups to write questions about the points in the lecture they did not follow. The class discussion of these questions was taped. Looking at the transcripts later, I found the students had been able to follow some of the lecture. This is reflected in the questions they asked. (I found out that some students had even made notes which they used in answering the questions.) The student input in this second class discussion had increased, and morale seemed higher. We were encouraged by these signs of progress.

CYCLE TWO: February - March, 1985

The first cycle, which was in Elliott's terms (4) largely taken

up with 'reconnaissance', had showed that students' input into the recorded lessons was low, and also provided evidence that students lacked discussion skills. As a result, I formulated the following hypotheses:

1. That if students are exposed to experiential learning situations, they are likely to participate more actively in their learning.
2. That exposure to experiential learning will help students to discover that they can find information for themselves, and they will understand that reality is not fixed; people can learn things for themselves.

From these I planned my next 'Action-steps'. The first one was to be a field-trip to the BEDCO Centre in Maseru, followed by small group discussions.

Groups

The students were now in C 2. Most of them had come on from B 2, but there were about ten new students, mainly boys. New groups were formed, and after reading Barnes and Todd (5) I insisted on having at most five pupils in a group. The groups are still self-selected, however, and this has worked well.

Planning for the BEDCO visit

During this cycle, Dr. M.R. Montsi joined us as a second consultant. At the planning meeting, we agreed that students should be in their groups during the visit, and should carry out different roles within the groups, as follows:

- one would be the secretary
- one would ask questions
- two or three would act as observers

The students would be given a list of questions to guide them in collecting information.

Briefing lesson

A briefing lesson for the trip was monitored. The students showed a lot of interest. We went through the questions I had prepared, and then the students went into their groups to give roles to their members. One group of boys did not, however, allocate any roles.

During the visit

When we were at the Centre, the students were very enthusiastic, asking questions and making notes. Members of the groups could be observed conferring together. The two research consultants and myself were sure that the students' interest was a good indication that they were learning a lot. Students were taking the lead to find information. After the tour of the Centre they were addressed by the Director in a hall; the address was in Sesotho.

Groups Discussions

The field-trip was followed by small group discussions. Three groups were recorded; as the classroom is noisy, being close to the road, these were moved to the library and science laboratories. The morale of the students left behind in class was low, but after an explanation that they were not selected merely because there was a shortage of tape-recorders, they brightened up.

The groups had to copy a set of questions which would help them to structure the information they had collected. The class was slow to start, but there was a great improvement in that they did not seem to mind my presence, and continued talking when I came around.

When one of the groups asked for clarification, I realized that they did not have notes for Part 1 of the questions, which were based on the lecture they were given by the Director of BEDCO. I also noted that the group of boys who were reluctant to allocate roles beforehand had no notes for Part 2 either! I observed that even though I had seen a lot of people taking notes during the visit, there were very few students who produced their notes to compare with those of the secretaries. Listening to another group, I realized that they thrashed out a point in Sesotho, and afterwards they helped the secretary to make notes in English.

When I listened to the tapes of the recorded groups, I realized that students were still not really engaging in discussion. But I was encouraged to find that some students were now going a long way to help each other to answer the questions correctly. The following two extracts illustrate this:

Extract 1

(This group is trying to answer the question: How did BEDCO start?)

S 1 They said, how is it started?

S 2 It started for helping the

(together) How, how, how? Yes...

S 2 How means, it is started by ...

S 3 How did it start?

S 1 In which year, or ...?

S 2 How, how... method did it start?

+

S 3 The way it start....

(together)

S 1 Oh, the way it started.

(The answer to this question was based on the information given by the director in his talk.)

While some groups just gave a date in answer to this question, this group helped each other to understand what was required even though they could not answer the question as they had not followed the address given by the director.

Extract 2

(This group had been discussing the BEDCO workshop with its machines, and one student uses the word 'employee')

- S 1 That machine, may be they get it from Bloemfontein, Germany as well, anywhere.... they can find... they try **to help the** employees.
- S 2 And employees pay some little fee for, for the house and electricity.
- S 3 That's right, you see. What is employees?
- S 4 It is the one who is ... the one that he employed.
- S 3 Let me see ...
- S 2 Is the one who employed
- S 4 {Employees
- S 3 {No, it's the worker, or what? (together)
- S 4 Yes, it's the worker... it's the servant.

Students had been asked to find how many employees were employed by BEDCO, so the word was not originated by them, but it is interesting to find that someone asked his colleagues what 'employees' are. Student 4 has language problems but he understood what an employee is ('the one he employed'). Student 2 misses his point and says: 'The one who employed'. At which point Student 3 says 'It's the worker?' and this is confirmed by Student 4. Consensus here closed the discussion; possibly Student 4 was not confident enough to pursue the matter.

This shows how confused the students' use of concepts often are, even when they are supposed to have learnt them. The concept of 'employee' is here wrongly used so it is interchangeable with the concept 'worker'. But the report which they read to the class could not show this. That is why taping students' discussions becomes indispensable in Action-research. The extract also shows how students do help each other to the best of their ability.

Looking at the transcripts of these three discussion groups, there was a marked improvement in student participation. The two groups quoted above - both of boys only - had carried on quite lengthy discussions about the questions, and were apparently unworried by the recorder. The third group - the mixed-sex one - followed the old pattern of reading the question, whispering in Sesotho, then reading one answer, in English, into the tape.

Reflections

I realized that the students' inability to fully use small group discussions to produce good reports was due to the fact that they lacked certain skills which I had assumed they had; skills necessary for carrying out independent inquiry. For example, they lacked the skill of taking proper notes while on the visit. Afterwards they could not reorganize the information they had, made up of what they remembered plus their scrappy notes, to answer the structured questions that had been given to the groups. Probably I should have prepared work-cards for the questions instead of writing them on the board and given each

student or group his work-card. This would have saved time.

Report-back session

As a result of my observations, I arranged the report-back session in such a way that groups which had not achieved much could be helped to understand through my probing questions. The lesson was monitored. Both the group discussions and the report-back were disappointing when compared with the students' enthusiasm during the tour. We were all rather disheartened, although we could see some improvement since last year, and the students' input during the lessons was certainly higher than it had been previously.

One is not clear what effects age and/or sex may have on students' performance in class. I had noted that of the three taped small-group discussions, the groups of boys had done much better than the mixed group. Could their shyness be related to these factors? Alternatively could the general passivity be related to the language problem? For example, during the tour and lecture at BEDCO, Sesotho had been used, and now back at school everything had to be explained in English.

Triangulation

To try to find out some of the reasons for their behaviour, Dr. Montsi volunteered to undertake a 'triangulation' exercise with the students the following week. She gave them a short questionnaire to answer, and also held a class discussion. She encouraged the students to talk, both in English and Sesotho. The results were quite illuminating.

Asked to say why they had problems in discussing their visit to BEDCO, one student said he had no problem as he had written everything he needed to know during the visit. Another student said she had problems because the secretaries were not clear in their notes, revealing problems with note-taking skills. Several students said they had simply forgotten what they had been told. None spontaneously mentioned language as a problem, but when prompted they did admit to difficulties. They all said they tried to take the notes in English.

When they were asked whether they enjoyed the visit or not, most students gave positive replies, but some remarked about the hostility of some workers. Some students explained that the workshops were too small and as a result they could not see or hear what was said. They pointed out that they found the visit tiring - which was true as it was hot and there were many workshops to be visited.

When they were asked an evaluative question - what things they would like to change about BEDCO - some students said they would like the furniture workshops to be housed close to each other. Others said they would make it bigger to take in more people. Another one said he would extend BEDCO services to other places outside Maseru. These show that students appreciated the work done by BEDCO.

Evaluating the learning

The students themselves, in the questionnaire, mentioned a number of things they had learnt. We also gave them a test; the class was

divided in two and given two different versions. (see Appendix A + B)

The test revealed that some students were still not very certain about some of the concepts they had learnt in class and observed during the visit, such as goods and services, and capital- and labour- intensive methods of production. It was also clear that students had forgotten information that they had covered earlier in the course e.g. the fact that leather had to be processed outside Lesotho as there is no tanning factory here.

Few students could explain clearly how BEDCO helps businessmen (Version A) or even give examples of such help (Version B). This is hardly surprising; the concepts are abstract and complex and the world of business is far removed from the experience of most school students. Also they were given the information in a Sesotho lecture and had to reproduce these new and difficult ideas in English. However, when asked whether they thought it was succeeding or failing, and why, most students could give some sort of sensible reason for their judgement. The visit certainly had made an impact on them, though language problems detracted from a clear analysis.

CYCLE THREE: April-May, 1985

The feedback I had received, both from the tests and from the students' views transmitted by the consultant, made me determined to repeat the sequence of lessons, but using a different visit and altering some of the methods I used. I was still following my hypothesis about experiential learning; the results seemed to be fairly hopeful, but I felt a second trial was necessary. I wanted to be able to evaluate and compare the two trips.

Visit to Maloti Mountain Brewery

The second field-trip was arranged to the Maloti Mountain Brewery in the Maseru Industrial Area. I wanted to show the students more capital-intensive methods of production; this would help them understand 'mass-production'.

The briefing lesson was organized differently: I simply asked them what things they wanted to learn about during the trip. They made up questions and I wrote these on the board. They proved that they had gained both in language competence, and in understanding from the first trip. The majority of the students were using concepts about production with ease and framing appropriate questions, though some still had problems.

During the visit the students were enthusiastic and kept asking questions. Everyone had to take notes this time; I dispensed with the allocation of roles as it had been confusing.

Group Discussions

Afterwards, all of the small group discussions were taped. It was unfortunate that not all the students had gone to the Brewery (it took place the day after the Easter break and some had gone home to collect fees), so that the normal working groups had to be re-arranged.

Here is an extract from the group quoted earlier on p. 47 as an example of helpfulness. They have moved further ahead and can now probe each other for explanations and receive reasoned replies.

- Let me ask you a question er- is it- is it er- the people who work in Brewery are they- are they educated or not?
- Some of them are educated.
- Some are, some are not.
- It's a skilled people (unclear)
- What things shows you that some are educated some are not? Which things shows you?
- Some- some works is not good for- is the work for skilled people and someone is unskilled people like to pack- is the unskilled people because they pack, there's nothing that they done
- But is it more unskilled people or less unskilled people?
- More skilled people, because the people who are pack is very small
- Yes, skilled people can see their meaning because, you've seen when we are asking questions, they try to talk in English and Sesotho so and you see, ... people who knows how machines do what and what and you must know that the people who are like that are skilled people

Though students still did not engage in lengthy discussions, they were able to make good points. It seemed they had made better notes, and had been able to listen more attentively to the explanations given, possibly because they knew what was to follow, having gone through a similar exercise on the BEDCO trip. I did not give them any structured questions this time, but left them to put together their information in the way they thought best. At the time I was doubtful if I had done the right thing, but the reports show that they had profited from their experience last time; most of the groups carried out the task satisfactorily.

Report-back session

This was also organized differently this time. Each group reported without any interruptions, even from the teacher. It was clear from these reports that the secretaries now had a better command of language and organizational skills. Students' inputs dominate the session. However, none of the groups made mention of 'water' as a raw material needed for the brewing industry, and I felt I had to explain that point to them. Afterwards, the groups wrote up their reports on newsprint, using felt-tipped pens, and I stuck them on the classroom walls for all to read.

When I talked to the groups afterwards about what they liked about the industry, they mentioned things such as cleanliness; they were also impressed by the huge machinery that they saw. One student who had not gone to the Brewery did not believe it when he was told that the production rate was 240 cans a minute!

I was pleased that I had repeated the sequence. It went more smoothly. I think this shows that students need to be familiar with

different teaching methods before they gain full benefit from them. They need to practise the skills associated with different ways of learning. In this case, they were able to get more from the second trip, thanks to their experience with the first one; they seemed to have acquired some skill in getting information on a visit and that may have helped them to open up more in the following lessons. They were beginning to apply the knowledge which they gained to other areas. Of course, the teacher also becomes more flexible and experienced in using the method!

A comparison

In order to show how the class has improved over the year of the Action-research, I include the following extracts. Extract 1 comes from the very first lesson that we taped. Extract 2 is part of the report-back from the Brewery visit.

Extract 1

T The first one is, can we change the rocks that we have today?
(writes on board)

1. Can we change the rocks that we have today?)

T Yes. Is it possible, that is, is it possible that we may feel that we no longer want this type of rocks? So many people in the world today, people are in a situation where they can change whatever they have, but is it possible for us to say: we no longer want sandstone because it is close to our school, we now want dolerite? Can we do it, can we change this rock?

(Silence)

T Hm? Shall we settle that one? and get people's views on it? It is something that has to do with the origin of rocks. How comes we have these rocks? Can people change the type of rocks which are there in their local area? Yes, Thabo?

B We can't change them

T We cannot change them

B Yes

T Why?

(inaudible)

T Speak up

G1 I think it is difficult to change the rocks

T What do you mean by saying you think it is difficult?
(silence)

T Anybody else?

T Anybody else? Yes,?

G2 (inaudible)

T We can change the rocks we have, yes?

G2 It is not possible because the stone, the stone is is naturally there

T It is not possible because the stone is naturally there.

Extract 2

- T Today we are going to have reports from the groups and as I told you the other day, I will not disturb the presentation. Each group will present, and will give us their information; the secretaries will come forward and present their information the way they have arranged it. Shall we start?

Have the secretaries taken out their notes?

(to one group) Where are the notes? (Pause)

What about you? Have you looked through your notes? Where did you put them? All right, come on.

(Thekiso's group is chosen to start. Tape recorder moved to back of class so he can be heard.)

- Th From the brewery we learn that the Brewery started in 1st October, 1982

- T Excuse me, I would like you to present yourself to the tape. We should know who is speaking.

- Th Oh, here is talking Thekiso
(much laughter)

- Th From the brewery we learn that the brewery started 1st October, 1982

- T Shall we be quiet?

- Th They produce soft drink and hard drinks. They produce hard drinks with malt from France and Britain. They get their tins from South Africa. They use the capital-intensive to can their beer, and they use labour-intensive to pack beers. The machines they use are washing machines, canning machines, which makes 240 cans a minute, while in an hour it makes 15,000, 15,000 tins.

They use raw materials. They produce Long Tom, Black Label, and Castle. They use caramel to give the beer colour and they use carbon dioxide .. no ... and they use carbon dioxide (pause)

They have, they have only one centre which is in Maseru, and the others in South African Republic, not in Lesotho. This brewery's company to L.N.D.C. Centre and S.A., SAB, South African Brewery.

They have two hundred or three hundred employers (his friend whispers "employee" but he doesn't repeat it). They have no other centres (unclear)

They service their machines mainly, so, in Lesotho, from the persons who are from Fogoti or from Leloaleng, in Quthing.

They are all, mistress.

- T Thank you. Bereng.

(Tape recorder moved to desk near Bereng)

- Be This is Bereng here.

We had the discussion on Maluti Mountain Brewery, at Industrial Area. The government is responsible for Maluti Mountain Brewery. It was started when the South African Brewery talked to the

L.N.D.C. in order to make this industry and L.N.D.C. have the share of about 5% to 6. Maluti Mountain Brewery did not have other centres. They are about 250 employees. They are unskilled and skilled people. They get their training at Leloaleng and L.T.C. They use the following raw materials: barley, maize, caramel and hops. They use barley to make Black Label, maize and barley to make Castle. Caramel is used to change colour of Castle and Black Label. Barley is came from Britain and France, while the maize is came from South Africa. Hops and caramel also came from South Africa.

They use the following machines: wash-can, cooker, filling machine and machine that wrap paper. Machines came from Germany. The industry have its own people who have skills to service and repair machines. (unclear)

Industry produces hard drinks and soft drinks. They are sold to the owners, hotels, shops and others. It had started on the twenty-first October 1982. That's all.

T Thank you, Bereng. Another group? Which is the next group? Lebohang, are we getting to you?

Le Talking here is Lebohang.

"A Visit to Maluti Mountain Brewery." Maluti Mountain Brewery was started in 1st October, 1982. It is owned by the Lesotho National Development Corporation and South African Breweries. There are around 200 employees who work in there. The raw materials come from South Africa. The packing equipment come from South Africa.

Castle is made up of barley and maize. Black Label is made up of barley. Caramel makes the beer to be coloured. They only make Black Label and Castle. All machines come from Germany.

That was all.

On the basis of this data, one may say that students are able to participate more actively in class when they have experienced certain situations, and that first-hand experience helps them to understand concepts they are learning about, and they are better able to relate them to real-life situations.

Other problems

However, this was a very difficult group that I was working with. When they were interviewed by one of the consultants about learning Development Studies - this was towards the end of the research period - they pointed out that they have problems with learning because 'the teacher does not give enough or clear explanations.'

I realize that one has to be more patient in dealing with students who are not motivated or who do not want to take responsibility for their own learning. It may also be true that they find it especially difficult, when asked to give their own examples, and that in open-ended situations they feel ill at ease in their learning. From interviews with some of these students, we also found that they sometimes do not want to participate in class because of the remarks of other students.

Conclusions

In this closing paragraph I want to focus on self-evaluation as a result of having participated in this research project.

When I listened to my first taped lesson, I was horrified by the language I used in class. From then on, I always made an effort to complete my sentences, to pay attention to tense, etc. I am aware that the students I handle are exposed to a situation where they listen or speak English only in class.

Secondly, I think from reading the students' response to the attitude questionnaire (6) I have learned more than in any situation how students find learning difficult if they are afraid of the teacher. I have since tried to be more patient in handling my classes. As a result the general rapport with this group is good. After a class-teaching session, whereby I was giving a lot of information, I gave an assignment. Before this could be handed in, I was approached and told that the students did not follow the assignment. I used a lesson to give individual help only to people who requested help. At the beginning there was a general hesitation as to who was going to ask for help. In the last ten minutes of that lesson, there were so many requests for help that I decided to go to the chalk-board to help the rest of the class. This was an eye-opener to me; I have reached a much better understanding with this class. Some changes one may not be able to put clearly, but one's involvement in this research is paying dividends in terms of professional development.

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2. Ibid.
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4. John Elliott, Action-Research: A Framework for Self-evaluation in Schools (Working Paper No.1 Schools Council Programme 2, TIQL Project Project, 1981)
5. Barnes & Todd, op. cit.
6. 'Open Questions', a 26-item open-ended attitude survey administered by Mrs. Stuart in July, 1984, to each case-study class.

APPENDIX A

L.I.F.E.

FORM C 2

DEV. STUDIES TEST

FEBRUARY 1985

VERSION A

1. a) Name TWO kinds of goods produced by industries at BEDCO.
 b) Name ONE kind of service provided by industries at BEDCO.
2. For each of the following, say whether it shows a LABOUR-INTENSIVE or a CAPITAL-INTENSIVE method of production, by writing LAB or CAP for each answer:
 - a) a conveyor belt
 - b) stitching dresses by hand
 - c) Rose Leather Works
 - d) ploughing by tractor
 - e) men unloading plants from a bakkie.
3. Explain the meaning of the word 'employee'.
4. Suppose you want to start a small business in Maseru.
 - a) What kind of goods, or services, would you like to produce?
 - b) Why? (write 4-6 lines)
 - c) You go to BEDCO. What kind of help would you expect to get from BEDCO (write 5-10 lines)
5. Rose Leather Works imports leather from Pietermaritzburg. Leather comes from the hides (skins) of animals. There are plenty of animals in Lesotho. It is strange that leather must be imported from Pietermaritzburg.

 Suggest ONE possible reason why Rose Leather Works gets leather from Pietermaritzburg and not from Lesotho.
6. In your opinion, do you think that BEDCO centre is succeeding or failing in doing what it was supposed to do? Give at least two reasons of your own.

APPENDIX B

L.I.F.E.

FORM C 2

DEV. STUDIES TEST

FEBRUARY 1985

VERSION B

1. Say whether the following industries are producing goods or providing a service by writing GOOD or SERVICE for each answer:
 - a) Linema Workshops
 - b) A motor mechanic
 - c) Kabi's shoe repair shop
 - d) A vegetable canning factory
 - e) brewery
2.
 - a) Give an example of a labour-intensive method of production which you saw in BEDCO
 - b) Give another example of a labour-intensive method, which you know of from elsewhere
 - c) Give one example of a capital-intensive method of production which you saw in BEDCO
 - d) Give another example of a capital-intensive method, which you know of from elsewhere.
3. Explain the meaning of the word 'employee'.
4. Give ONE example of each of the following:
 - a) an infrastructure service supplied by BEDCO to the businessman
 - b) advice BEDCO gives to businessmen
 - c) training given by BEDCO
5.
 - a) What is a LOAN?
 - b) Why does BEDCO give businessmen loans?
6.
 - a) Which of the goods you saw being produced in BEDCO is most useful to people in Lesotho, in your opinion?
 - b) Why? (write 4-6 lines)
7. Rose Leather Works imports leather from Pietermaritzburg. Leather comes from the hides (skins) of animals. There are plenty of animals in Lesotho. It is strange that leather must be imported from Pietermaritzburg.

Suggest ONE possible reason why Rose Leather Leather Works gets leather from Pietermaritzburg and not from Lesotho.
8. In your opinion do you think that BEDCO Centre is succeeding or failing in doing what it was supposed to do? Give at least two reasons of your own.

CHAPTER 5

A CASE - STUDY AT THE N.T.T.C.

Mahlape 'Musi

What is Action - Research?

Action-research can be defined as 'the study of a social situation with a view to improving the quality of action within it.' (1) This definition suggests that one evaluates one's own action, that is, in the environment in which the action takes place. The idea of this is to improve practice and solve problems.

I need to point out that much as the emphasis is on the teacher's performance, in class, the students themselves are not left out. I want to believe that in most cases any improvement in the teacher's performance will be reflected by the students' performance. Learning itself is a two-way process, that is, an interaction between the learner and the teacher, hence in Action-research the students are part of the research, due to the fact that the nature of the feedback they give reflects the teacher's input into the lesson. Consequently Action-research can also be seen as a 'programme both for generating new knowledge about teaching and learning, and for professional development'. (2)

Under normal circumstances teachers depend for much of the time on evaluating their performance mainly by giving students tests or examinations. This means that we give ourselves a certain period of time to judge how far successful our teaching has been. Most of the time teachers assume that if students do not ask questions it means they have understood. This may not always be true. An interesting question would be: why can't we be thorough about evaluating each and every lesson? I believe strongly that this constant and immediate evaluation of lessons is necessary. Some teachers may do this, although subconsciously. It is also interesting to note, however, that evaluating each lesson means a lot of work, so much that in most cases one feels more like a student than an independent teacher. In fact, being a member of the Action-research Group means a lot of work. However, I feel this is a necessary burden which every teacher should be prepared to carry, especially when one is made aware of one's role as a teacher.

Why I joined the group

The invitation to join the Lesotho Action-research Group came when I had begun teaching the Primary Teachers' Certificate course at the National Teacher Training College (NTTC). At the time I was puzzled over the way my students tackled the question: 'why do people form human groups?' Students were referred to the library to find information for themselves. The students simply transcribed the contents of the books on their scripts. Furthermore, they could not comprehend, nor could they analyse, what they had written. Something had to be done! But what? Then the LARG came along. The main idea was to evaluate my own teaching, lest the students' failure to comprehend was due to my teaching. Secondly, I had a desire to help my students to develop and improve their cognitive skills. The following assumptions (outlined at the Group's planning meeting in June, 1984) helped me to start:

- 'Students show a lack of higher order skills such as comprehension, application, analysis and synthesis';
- 'Students believe that knowledge is closed or fixed; it is a thing which they are given, rather than an exploration in which they take part.'

I have implied above that being a member of the Action-research team gives one a new insight into teaching. How do we go about this? One of the methods that we used was recording the lessons and then analysing them later. At the time when I'd be listening to the tape, I am like a person who has not been part of the lesson, hence one is always able to analyse the tapes objectively. Most of the time, I regretted having said some things, while there are others that one wishes one had said, or one sees one could have presented an idea in a different way. In this manner, the tape acts as a reflection of one's work. However, the problem with a tape is that it can not observe class activities; hence, whoever is listening to the tape is not able to see the gestures which the teacher made during the lesson; all it does is to record the lesson. We tried to reinforce this by using a 'facilitator', whose role was to observe the activities in class. The teacher and the facilitator reflect on the whole lesson. They usually hold a meeting before class to discuss what the teacher is hoping to achieve in the lesson. After the lesson there is usually another meeting to evaluate the whole lesson. However, I need to point out that the presence of the facilitator in the long run creates certain degree of dependency on the facilitator herself, so that in the absence of the facilitator, one gets the impression that one's work is not complete - the facilitator should be there to give her own comments. Action-research is therefore, more interesting and beneficial if it is undertaken as a team. Consequently Action-research develops important skills such as self-criticism and readiness to accept criticism from other colleagues.

Learning Facilities

I teach about 250 students who are training to be teachers in the primary schools. These students have been divided into ten groups. The entrance qualification for these students is that they should have passed their J.S., preferably a first or second class pass. However, since the government is trying to have an even spread of teachers, for both the Maloti areas and the Lowlands, the entrance qualifications have to be relaxed so that those from the mountain areas can be admitted into the college. Another factor is that some students who qualify into this programme may have been out of school for five years, and hence one task that the teacher is faced with is that he has to bridge the academic gap that exists among students.

The facilities are about average. There is one bulletin board though it is small. The problem with it is that the posters that are displayed on the board are usually snatched off. The classroom is spacious and well-ventilated; however, there are hardly enough chairs and tables. There is a good library which has a good magazine and newspaper section. The books on development and other related areas are good, though there is a general complaint from students that such books are difficult to understand. For a long time I have been wondering whether this is true, or is it because the type of students we have are such that they depend on the teachers' support in their learning? I have observed, however, that during the day, there is very little time for reading - the students spend a lot of time in class.

CYCLE ONE: 1984

I started off with the topic: 'The Concept of Development', and over the first two months I gave the students the following tasks.

(1) Task A: My Village (using discussion as a teaching method)

I assumed that when a teacher says: 'Work in groups of four to seven and discuss', students know what 'discuss' means. I still maintain that students know what a discussion actually is, although they are unable to put the skill into practice. The following story was used as a stimulus.

My Village

My village is in Mafeteng district. There is a gravel road to my village, which is not well maintained. In some areas the road is full of pot holes. Because of the bad road, there is always lack of transport.

There is one health clinic which is owned by the government. Under this clinic, there are several midwives who stay in the village to help expectant mothers. These midwives are trained at Scott Hospital in Morija.

There is one big supermarket which is owned by Jandrell. He comes by a chartered airplane hence there is one small air strip. There are three cafes and one butchery.

Everybody in the village has at least one field, and hence, the villagers depend on agriculture and livestock. To supplement agricultural production, most young men go to work in the mines. In their absence, women or their wives engage in making money through selling traditional beer, it is therefore not surprising to find that almost every house is a shebeen. One can also look at the shebeens as a form of entertainment. Apart from shebeens as form of entertainment, there is one race course.

There are two primary schools and one very young secondary school. The teachers in these schools (most of them) are either under-qualified or unqualified!

All villagers draw water from the springs, which are usually covered by stones, discarded pieces of zinc and thick sticks. For toilets, people use the dongas and the open hillside. The villagers gather wood from the nearby mountains. This is my village and I love it.

Each group had between four and seven members, who were of mixed intellectual ability. There were a few groups where both men and women were working together, although there were other groups which were entirely composed of women, and some which were entirely men.

Activities in each group: Students had to discuss each item from the story and present their findings on a diagram.

My Village

<u>Signs of Development (A)</u>	<u>Non-development Signs (B)</u>
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Two groups were taped. I moved around the different groups taking an active rather than a passive role in helping students. Where I found the discussion going smoothly, I just sat and listened.

Analysis of lesson

- a) Some groups received little attention from me; this was mainly because of lack of time and moreover, I tended to be more absorbed in some group discussions than others.
- b) Some students dominated the discussion. In most cases such students were the intelligent ones or the talkative.
- c) A large number of them seemed to follow what others have agreed upon.
- d) Students arrived at a consensus much too quickly without involving themselves in discussion.
- e) Some students have the quality to challenge and keep the discussion going.

(2) Task B Parliament Excursion (ability to find information on their own)

Students undertook an excursion to the National Assembly whereby students had to find the parliamentary structure, that is, the total number of members of parliament, which parties they represent, how many are nominated, how many are elected, and the number of Principal Chiefs. This mini-research was factual in nature.

Analysis of research: Students enjoyed this excursion because it didn't require any analysis or higher order skills.

(3) Task C Bulletin Board Exercise (encouraging students to be aware of what was happening around them)

Students had to bring newspaper cuttings and pictures for display on the bulletin board.

Analysis of exercise

- a) There was a low response.
- b) The pictures were irrelevant, unrelated to development e.g. fashion, music - no newspaper cuttings whatsoever.
- c) The few that we had were snatched before others could read them - never to be returned.
- d) There was no way by which I could tell whether students read the cuttings - no follow-up quiz.

Problems: Why is it that people who are training to be teachers seem not to be aware or even take the initiative to know what is happening around them? What does learning mean to them? Is it just what happens in a classroom? I say this is a problem because it concerns teacher trainees. These are people whose conception should extend beyond the classroom.

First Findings

On the one hand, I found that students appear to have the potential for the required cognitive skills, for example:

- a) analysis: separating issues, identifying cause-effect links and showing the interrelationships of variables;
- b) problem-solving: suggesting solutions, implementing and evaluating the actions.

Unfortunately, the learning environment (in their past schooling) was such that it did not tap the talent of the students. This reminds me that in my primary and secondary school the type of questions that we were asked were factual in nature, for example: 'When was the United Nations (U.N.) formed?' We rarely got questions which tested higher cognitive skills, such as 'How far successful is the U.N.?' Even in cases where we had to write short essays, it was merely to reproduce what the teacher had taught us; for example: 'Show what the Marshall Plan was all about'. This resulted in the students regarding the teacher as the central figure who should provide correct answers.

Perhaps the students have this conception because traditionally the word 'why' does not exist in a child's vocabulary. Children were told things, but never to say why; for instance, girls are not supposed to eat eggs. This was not to be questioned. In the same way, even students need to have a lot of courage and confidence to pose questions to the teacher. This then had a long term effect in that they rarely had the chance to question certain things; even if they did, it was in a quiet manner, to themselves. The teacher to them is the one who knows what is correct and that which is always correct and so it shall remain.

As I have mentioned above, students have the required cognitive skills; however, they seem to lack the confidence in expressing their ideas. They appear to be more comfortable with simple recall questions than with the 'describe', 'how' and 'why' questions. They await the teacher's assurance that what they have said or written is correct. Consequently, one can conclude that they (students) are not independent in their learning. These few scripts from my test illustrate my point well: that students have the talent though the type of questions they are given do not always tap such talents.

Question: Is the type of education we have in Lesotho such that it prepares children to help in the development of the country?

Essay (1)

The type of education we have in Lesotho is that which channels

people to one aspect of life, or it is the one that gives people the impression that there is one better way earning money to make a living which is to work in the office. Even though technical and vocational schools are just being introduced the situation does not change, that is the people do not want to take other trainings like carpentry or agriculture because from their early schooling or at their elementary schools these other ways of making money were not practiced or people were not encouraged to work for themselves like in agriculture or carpentry. So that is why we find that the idea of people working for themselves is out to many people. Another thing is that education itself is expensive and it is very difficult for many people to be educated and to be aware of the problems facing their country. And because of its expensiveness even those who managed to get it are running out of the country to go and work outside to earn more money. Because of all these above mentioned reasons the type of education we have in Lesotho fails to make pupils aware of the problems facing their country.

Essay (2)

Education we have in Lesotho is such that pupils are made aware of the problems facing their country. Because they will participate in development of Lesotho. They are free to have scholarship to go where they like if they want to. So that they can have more education from another countries and to compare things that are wrong in their country to put them in a good way. Because of their awareness they are able to participate in their country to share their ideas to improve the country and they are able to face the problem in Lesotho. And education should be suitable for them so that they do things easily.

Question: What does 'development' mean to you?

Development is the changing from the old ways to the civilized or modern ones.

- For example education is the most effective way to development. People should be educated in order to be able to put their environment in developed situation.
- There must be societies which will help people who do not have ways of being educated.
- There should be homes for the old age, who do not have relatives who look after them, and for disabled people.
- Economy is in the hands of society, if it is developed is able to use its environment to earn living.
- There should be some well maintained roads leading almost to every part of the country.

Question: What is the most important problem that Lesotho faces? Suggest how such a problem can be faced.

The problem that faces the country is that if a child is not intelligent in mind, the education can say that child is stupid they are somewhere can take part from school. He can go to the vocational school where he does things by his or her hands. Education

should build schools for those children who can not participate offices but take part in school of vocations. There no child that is stupid each and everyone has or her own talent.

(N.B. The original spelling and punctuation have been retained.)

The second finding is that most students seem to lack the skill of discussing. They say they 'discuss' and 'share ideas', yet they arrive at a consensus without having thrashed out a point in question thoroughly. Consequently the brilliant ones, or the talkative students tend to dominate the 'discussion'. There are some students who are able to raise challenging issues which are necessary to keep the discussion going. But in some cases students do not respond to the challenge; instead, they agree with what the challenger says. The end result is that the discussion dies away. Student teachers should be drilled in this skill.

Extract from Student Small Group Discussion on 'My Village'

Analytical
Comments

Student

- A Now we are discussing here the paper 'My Village' and in this paper we have got two categories in which we have to discuss the points which fall under non-development signs and signs of development, so we've got something here like health clinic.... so we put it under signs of development and then another thing (inaudible) ... and again there's a clinic which is run by the government. In this clinic there are several midwives - midwives fall under signs of development (long pause)
- B Point two (inaudible)
- C No, it is not in Mafeteng
- D It is not in Mafeteng. The Scott Hospital is in Morija.
- A Ya it written but the midwives are trained at Scott. Training of midwives
- S (inaudible)
- A It is said there's one big supermarket which is owned by Jandrell. Do you think it is another sign of development or the
- B It's a sign of development. It shows some development.
- A Oh Ya
- C There's also one butchery
- D Do I write it down under A?
- C Yes
- A But wait a minute, about the butchery because you're not sure about how big this village is or how many are the villagers, because we put butchery under sign of development we don't know how many it serves.

Gives definite statement

Which is accepted

Ready Agreement

It may be they still need another four or five. It does not specify how many people.	Analysis
C And how healthy it is	New idea
A Ya and how healthy it is	
D We have not talked about the supermarket Even the clinic - there's one health clinic but about the supermarket, cafes and butchery..... (inaudible)	Attempts to introduce discussion
A So which means we put butchery under signs of development	Close of discussion
B Ah OK (inaudible)	
A But look, cafes are, but what are we (pause) because what the government is doing for the people, isn't it, because butchery, cafe and other thing are not being put there as a sign of developing that district by the government anyway. They are owned by some of the people there.	This could have been a discussion of how to define development but it was dropped.
C But the development of the country ... (inaudible) can't rely on.	
A Alright now	
A Another is	
B What about the small airstrip?	
A Air what?	
D There is one small airstrip	
A Ya I think is another good point that one - yes	
A	
+ Airstrip	No discussion on airstrip
D	

A number of factors could have led to the students' failure to discuss. Possibly students were not challenged enough to be able to discuss. In my opinion though, I feel that the story was simple enough for students to grasp.

One other reason for their poor performance, which I feel is a national problem, is learning in a second language. I have found that students are able to raise brilliant ideas in Sesotho, yet when they have to translate and present those ideas in English, the ideas lose their strength.

In this case, it is obvious that the inhibiting factor is English. Ability to raise relevant ideas in Sesotho shows that they have thoroughly understood the exercise. The teacher is now left with a dilemma of whether she teaches in both English and Sesotho, or to which one to give preference, i.e. which language should students know? However the teacher has to bear in mind that there are some concepts which have no Sesotho names. Another point is that if a teacher gives preference to Sesotho, are the students not going to have problems in writing examinations which are set in English?

I believe that this question of bilingual education needs to be looked at very closely, because in itself, it brings us back to a controversial issue, of whether we teach for examinations or for understanding.

Student Interviews

What I have said above is merely my own viewpoint on students' work and performance. The students were given a chance to air their views or to evaluate the teaching, that is, to make comments and criticisms, and say how best they want to be taught.

The students were interviewed by the facilitator on their feelings towards the teaching of Development Studies. The general feeling / agreement is that students prefer small group discussion to large group discussion. One of them pointed out that he prefers the former to latter because in the latter:

'the teacher is there to give us information. On the other hand, one may not always give one's answer. Suppose someone before you says something, and the teacher says "That's good" you may not give your own answer, you just shut up, because what you have to say won't be any good.'

On the other hand, students are able to identify the advantages of large group discussion.

'they are useful as they give us an idea of the topic before we start discussing it in small groups. We collect some information before we get to the class groups, so we can take part.'

There was a complaint from some students that they are not given sufficient literature or, even more, that no book had been prescribed. While this may be true to some extent, I need to point out that very few students actually used those books which have been put on reserve. Again, one would ask oneself: why is it that students are insisting that there should be a prescribed text? Do they feel comfortable if a specific book has been identified as their textbook, so that they rely on it in order to avoid reading many library books, and also that they should consider it as a provider of correct answers? Why is it that students appear not to feel free in using or fishing for information for themselves from the many books in the library? Are they insisting on the textbook so that they can depend on it?

The majority of the students prefer to be given notes for fear that

they may misspell some words, while on the contrary some insist that they prefer to take notes. This, they say, gives them an opportunity to test their understanding, that is, once they are able to present an idea in their own words, it means they have actually grasped that idea.

'Taking notes while a lecturer is speaking is good chance to practice spelling. I can always check it. Taking notes from the board may make us lazy.'

One student stated that:

'The ones (notes) I make myself are the most understandable and useful, because I worked for them.'

One can see that pride and confidence builds in a student, which is good. A student should be proud of his/her own achievements.

Asked about whether they find Development Studies difficult, the response was: 'It is difficult. But it makes us think about the things we see around us...' However, some students expressed a feeling that they find it difficult because they lack background. The majority of students raised their concern over lack of literature. Their major complaint was that some of the books they find in the library are far too difficult to read and comprehend, so much that in the end they have to rely on the teachers' notes. Because of this they are beginning to develop a feeling that Social and Development Studies is a shallow subject.

I must add that the criticisms raised were made in good spirit; students gave the facilitator permission to pass on their comments to me.

CYCLE TWO 1985

From the exploratory stage, a number of hypotheses to act as guidelines for action were formulated. The main focus was on trying to create an environment conducive to independent and participatory learning, which would tap the cognitive skills the students seem to possess.

The hypotheses were as follows:

- (a) Students will understand better if they participate fully in class, so lessons should be organised in such a way that they encourage active student participation.
- (b) Students need to be both encouraged and challenged if they are to embark confidently on independent learning, so the teacher must choose methods which facilitate this.
- (c) Independent learning and the development of cognitive skills can also be fostered by use of actively challenging teaching aids.
- (d) An over-structured learning environment can limit the scope of understanding of the students, so the structures should be progressively reduced.
- (e) Students expect tests to test recall of factual knowledge, so methods of testing should be modified to test understanding.

With these guidelines in mind, I developed the first 'Action Steps'. As it was the beginning of the course, the students were introduced to the 1981 Primary Social Studies syllabus. They worked in groups of three to four members. Each group had to identify examples of concepts, skills and attitudes from the topic 'Our Homes'. In this exercise, students were able to do most of the work. However, there were still problems which I have mentioned earlier on, of failure to discuss. With this in mind, that students appear to lack the skill of discussing, I gave students a lesson on discussion as a skill and also as a teaching method. There are certain points which one has to watch out for, namely, the topic, the level, the atmosphere and the aim of the discussion. In a follow-up lesson, students were asked to volunteer to demonstrate to the class what real discussion is. Their topic for discussion was:

'What would happen if all South African mines would close and all Basotho men sent home? Discuss the good and bad effects.'

I need to point out that I chose this point because it coincided with the miners' strike (May, 1985) and I wanted to see to what extent my students could project their thinking into the future. The task of the rest of the class was to observe, listen and make comments and criticisms. The topic did not give any problems; some of the examples used were drawn from what was happening in Maseru, though the miners had only been a few weeks at home. The observers, together with the participants, were able to make sound criticisms and recommendations. Some students possess a very good ability; that of challenging others. This is good since it sustains the discussion. This time the challenger's ideas were welcomed by the group. On the contrary, there were still some weak points. There were times when the students moved off the point ...

Extract from Discussion on the Return of the Miners

- M1 Should we consider, ee, both Lesotho and South Africa and or Lesotho only in the effects?
- W1 Only Lesotho, Lesotho is going to be affected mostly.
- W2 And in the same way the Republic of South Africa is also going to suffer somewhere somehow, because they're not going to get the gold or the coal or anything that is being mined underground when the labourers are not there.
- W3 As they've mentioned to the good point I think it's good for the , for our husband to come here to Lesotho as we see the mines had broken and while they broken they also, ee, broke while our husbands are under the ground, so I think it's good for them to be driven back to Lesotho.
- W4 What, what, or what will we survive because the land is limited, there is no where we can ee plough?
- M1 And there are no resources in Lesotho
So you can see all these that
CONFUSION (students talking together)
- W2 Are depending on each other, the South Africa, the Republic of South Africa cannot develop when the Basotho labourers are not in the Republic. And in the same way when the Basotho labourers are being driven out of the Republic of South Africa into

Lesotho, we are going to suffer a lot. So these two countries are dependent on each other.

M1 So do you mean is fifty fifty?

W2 No but Lesotho will suffer a lot, more than the Republic of South Africa.

M2 But you'll remember we have good miners in Lesotho for diamonds.

W1 So but do you think it produces a lot?

SS CONFUSION ... in R.S.A. ... No, but if you look (students speaking at once)

SS Kao diamonds ... Kao.... yes

M2 Do you think that mine will accommodate those people there? All together?

WW Can you make it can employ, they've no equipment
CONFUSION

W2 Our country has lack of equipment

W3 We have only one mine in Lesotho OK? and remember how many mines are in the Republic of South Africa? and how people are being employed there? do you think this Kao of yours can employ all those people who come from the Republic of South Africa? I don't think so.

S No

W2 Even there are very many resources in our country like paraffin, there is paraffin in Lesotho and there is coal in Lesotho, but I can think, ee, we have less equipment, but we, if the, our country can make, ee, an allied country somewhere, we can have any improvement in our country. If you think there is still some work to be done, why are these people loitering about in the street aimlessly? why are they not given, why are they not being given job to do if you think there is still some work to be done here in Lesotho?

W1 There is still some work to be done but they don't want to work hard.

W3 Why are they not working?

W2 There are some fields up there in the mountains so if those Basotho men come to Lesotho, they'll be able to plough those fields and sell, er, the things they produce to the people who live in the town.

W3 They are not being told to do so. You can't just jump into someone's field and start ploughing your things without being told, they have to be told.

W4 No by now they'll have a co-operation, so they'll we have to cooperate and be sharing whatever produce we get from there.

W3 You have to start, you have to start with the people who are in the country first, so that you can see where there are piece jobs and where there are spaces to fill in the people who come from the Republic of South Africa and yet you cannot employ these people who are in Lesotho right now.

- W2 I think, my dear, we have already said that we have got many resources of life.
- W4 Which ones? Mention them.
- W2 I've already mentioned them like diamonds, like ee, like paraffin and coal

Other Learning Activities

(1) In an attempt to explain what Social and Development Studies is all about, there was a classroom discussion on the nature of the subject. The next class was geared towards explaining what each component is: such components are geography, sociology, history, political science and economics. I gave the students a short story to read, in which they had to identify elements of each component. This exercise was done in twos, while those who were prepared to work as individuals were free to do so. Very few students volunteered to work on their own. The majority of students were able to find that there existed a relationship between different components of the subjects; for example, there were some parts of the story which qualified to be classified under both history and economics. This shows that the students are now beginning to find information for themselves, which was one purpose of this activity.

Thabo's Story

Thabo did not get a job in the mines, as a result he has to depend on his two fields for food. With a good soil, good climate and a tractor, he was able to produce good yields. It was the task of every member of the family to work in the fields. Last year, the yield was so good that Thabo sold the surplus he had in a nearby market, he was therefore able to buy clothes for his family.

However, one day the chief visited him and told him that the area in which his fields were has been marked as a new industrial site by the government; he would be given two new fields elsewhere.

(2) Another topic we looked at was The Family. Under this topic we looked at the structure, the types of family, the roles played by family members and the functions of the family. Students were given different cards which read differently, e.g. 'You are a mother and you teach your daughter different forms of behaviour' Each student was able to play his role satisfactorily.

(3) Another exercise which the students did under this topic (The Family) was to read instructions from a short story and then draw a family tree. Students followed the instructions well except for a few cases where students had problems of understanding English. This exercise was done in pairs.

Extended Family

Sefako married Pulane in 1910. From their marriage, two sons and two daughters were born. The eldest son got married and had three children, one daughter and two sons. Sefako's second daughter got married and has two children, both of them

girls. Sefako's third daughter did not marry. His last born got married and he now has four children, all of them boys. Sefako's first grandson had two daughters.

- (a) How many granddaughters does Sefako have?
- (b) How many grandsons does Sefako have?
- (c) How many great-granddaughters does Sefako have?
- (d) How many great-grandsons does Sefako have?
- (e) How many daughters-in-law does Sefako have?
- (f) How many sons-in-law does Sefako have?

This proved to be a challenging and an interesting activity. I had an assumption that students could draw the family tree without any problems, but this proved not so. A large number of the students were not aware that those who fell under one generation should occupy the same horizontal line. Consequently, they got the answers which followed wrong. Another observation was that this story generated a lot of discussion, though a large majority still discuss in Sesotho. This time students appeared to be sharing ideas.

(4) The next topic was on Human Needs. I used different pictures from Kenya, Tanzania, Lesotho Building Finance Co-operation, Latin America and India. Students worked in self-selected discussion groups, (of mixed intellectual ability), Each group was given different pictures. They had to study the picture and identify different needs and try to tell a story on the type of life the people in those pictures lead. Each group had to choose a representative who would present their findings to class. The different stories that came were in fact based on the picture.

(5) Bulletin Board

The Bulletin Board has been fully incorporated into the learning process. Every fortnight new cuttings are put on the board, and this is followed by a quiz. The questions in the quiz are of a mixed nature; some are simple recall questions and some require analysis, for example, 'Why should Manpower be given priority?'

Quiz No. 1

1. Give the name of the Russian leader who died recently.
2. The Ministry of Education is in the process of introducing schools and schools.
3. How will the introduction of such schools help Basotho children?
4. Give the name of the school which was recently opened in Mokhotlong.
5. Write SADCC in full.
6. Why should Manpower Development be given priority?
7. What occasion do Basotho celebrate on the 12th March?
8. What is Manpower Development?

The cuttings that were put on the board were entirely the responsibility of the teacher. The reason is that when initially the students were asked to bring their own cuttings, they brought irrelevant pictures. However, it is interesting to note that, by the end of the third fortnight, students were bringing their own cuttings which were informative. Another point is that, students seem to take the bulletin exercise seriously because they were allocated marks. To a large extent this exercise has achieved its main goal of students being aware of what is happening around them. Students should be aware that learning is not only that which takes place in the classroom. Most of the time students ask questions or an explanation of something which is happening. This is encouraging because according to the 1981 Social Studies syllabus, Current Affairs is compulsory from Std. 3 to Std. 7.

Some conclusions

Involving students in a lesson gives them a feeling that they are part of the learning process. They feel that learning is not concentrated in one person (the teacher) and that they share responsibility for their learning; they can do this by participating in the lesson and thus help to make it interesting and successful. Such constant involvement gears students towards independence in new learning. In the long run, students develop confidence in themselves, which I believe to be fundamental in learning.

But how does a teacher involve students in a lesson? This she can do by varying her teaching methods. To mention a few such methods: games and simulations, role-play, discussion (preferably in small groups), and research. In the latter case, the teacher can design the research to suit the level of her class. One can see that this is possible even for primary pupils. Another way of involving students in a lesson could be hhhhhe use of actively stimulating teaching aids: pictures, for example. Moreover, students could be asked to make such teaching aids themselves. While this can be done at any level, it is particularly relevant in my field of teacher-training.

However, it is difficult to measure participation because there are some students who on the one hand may not appear to be participating in a lesson, and yet on the other hand, when they answer questions (either in tests, in class or in examination) they reveal a thorough understanding. This shows that the students did participate, though in a non-active or silent manner. While this is participation, it is difficult to measure. I hope I am not wrong in saying that teachers prefer active participation, which is measurable, to silent participation, which is difficult to measure. Feedback from students gives the teacher an idea of how far successful her lesson has been.

Once the students have overcome the problem of their lack of confidence, it means that they can embark on independent learning, and their dependence on the teacher is reduced. Being independent means they can find information for themselves, and they can also challenge, criticize and raise an argument confidently.

I had some evidence that my students were beginning to move in this direction when I asked them to present the 'model discussion'. From the extract below, one sees that students were able to raise arguments, support them with evidence and sustain the point. The topic was closely related to their day to day experience, hence the discussion easily flowed.

- W1 Hey 'Maphakiso, have you heard that all the Basotho men are avoided to go to into the Republic of South Africa?
- W2 Yes, 'm'e, we've heard about it , and in the other way round I am happy about it. We'll not have to miss some of our husbands. We are longing to see our, their faces so we won't miss them for quite a long time.
- W1 Oh! you are longing to live with your husband. We are all longing for that but uu-u! there will be great famine in our families because there will be no money for to buy food and clothes.
- W3 Well I might point missing our husbands, our husbands, as one of the good effect that might be, that might come up. When the Basotho men are being driven out of the mines. In the same way we are going to have some of the bad effects; there is going to be overpopulation and some of the families depend of some, on some of the people who work in the mines and you find that in the family there is only the father who is working in mines and the children have to depend on their father, the children are going to suffer a lot but the mother in the other part is going to, is not going to miss the husband a lot.
- W1 Uu! That is bad, my dear, you know, because in our country there is no work; there's less work for people. People are many and there is no work! And you know the men will be going up and down, and what are we going to feed them?
- M But those people would be able to work, ee, in the farm, they'll be farmers, I am telling you.
- W3 Where are they going to get to buy get money to buy fertilizers?
- M The Government will see to it.
- W3 Which Government?
- M The Lesotho Government.
- W3 The government is below average you know.
- W4 And again, to support, that's not the fault of the Government, because they do for themselves. That strike is, belongs to them not for the Government so no help will do by the government.
- M I mean, ee, those people from the mines will be able work, ee, in the farm.
- W4 Yes they'll be able, but, you said they will be helped by the government.
- M No, the government will help the farmers.
- W3 Being the miner?
- M Yes.

W4 And they might come, they might come to us and introduce new ways of living which might be of great importance towards the development of the country.

W3 But and again, there is going to be a lot of starvation. People are going to starve. Let's look, just now we are starving. There are thousands and thousands of people who are working in the mines, so what do you think is going to happen if they come here, all of them? That little piece of bread that we sharing, we'll have to share the little piece of bread that we have here amongst thousands and thousands of people. A lot of people are going to die about this thing.

From the data I have collected, I find students hesitate to answer questions which require higher cognitive skills. This is clearly shown by their responses during the interview that the facilitator held with them.

Facilitator: What sort of questions do you like to be given?
Questions that ask you to remember things, questions that ask you 'why?', questions that ask you to 'describe', or those that ask you to 'compare and contrast'?

W 'Compare and contrast', we don't like it.

M We don't have time to 'describe' even if you can say, write an essay about half a page, is too long; if you can say 'why?', or 'How?' you know how much you need (unclear)

W And we don't like this 'contrast and compare'.

M You are not free to answer such a question because you have studied less things. Maybe next year we can... answer such questions.

W Yes, they are too high for our standard.

Why is this? Has their experience of learning and teaching been such that they only know how to reproduce what they have been taught? We should conduct a self-examination in what we teach for. This is closely related to what I said earlier on about whether we teach for understanding or for exams.

I would like to look for a moment at these two different approaches, which I believe do exist in our teaching and learning situations, although ideally there should not be such a dichotomy. I define 'teaching for exams' as being able to regurgitate what one has learned so that one can pass the exams and get one's certificate. Usually such learning is forgotten after writing exams. 'Teaching for understanding', on the other hand, is being able to apply the knowledge which one acquired in school to practical life; hence one's life would partly be determined by what one learnt in school. I say 'partly' because school is not the only social institution which helps an individual to lead a better life in future.

It is worth mentioning that, while I believe we should not teach just to pass exams, on the other hand we should not overlook their significance. Exams are important hurdles, and passing or failing can determine the individual's life chances. Perhaps we need to look, however, more closely into their nature. People assume that exams are the best yardsticks for measuring understanding. But is this really the case? Do exams really test whether one has acquired the skills that one is going to use in practical life situations?

In teacher training, for instance, teacher trainees appear to leave college without having acquired the expected teaching skills and yet we believe or assume that examinations can measure whether or not they do. Even outside the teaching profession, a lot of people fail to perform duties they have been trained to do, and yet we believe that school is one of the institutions which should prepare people for their future lives. Going back to the issue of teacher training, what calibre of teachers are we producing if we depend on examinations as the determining factor? It means that we in turn produce teachers who are going to teach students to pass exams. This becomes a vicious circle. In the end, the objective for going to school is diluted; people go to school merely to get a certificate, because it is supposed to be a reflection of the holder's capabilities, which will ensure them a good job.

If it were not for this great importance which examinations have assumed in society, there might not be such a dichotomy between teaching for understanding and teaching for exams. Exams are therefore a direct cause of our problem. Teachers find themselves faced with a dilemma; whether to ensure students have understood, or merely to prepare them for exams. Moreover, teachers do not know which approach to use or how best they can teach so as to accommodate the two approaches.

It is obvious that preparing thorough exercises for students, which will ensure understanding, requires extensive preparation and considerable time from the teachers. For instance, the teacher may have to use different methods on one topic, just to ensure that students have understood, or she may have to use the same materials (teaching aids) differently. One can therefore see that to teach for understanding is time-consuming.

One solution might be to change the structure of the exams, that is, to ensure that exams do test understanding and do measure the skills that will be needed for the person's future life. The types of test we give to students should therefore not only test recall, but also understanding, and this should happen throughout our teaching.

In my opinion, in real teaching situations, we frequently find a dichotomy between teaching for understanding and teaching for exams, even though we do not like this. Yet the two lines are not totally independent from each other; somewhere they do overlap. This means that perhaps one can teach with both lines in mind, producing students who can understand and who also pass their exams. Teachers are faced with this challenge; to bridge the gap between the two approaches, and to see how these two important aims can be achieved concurrently.

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CHAPTER 6
A CASE - STUDY AT
S.T. STEPHEN'S HIGH SCHOOL

Phuthi Makhetha

Introduction

My aims for joining the LARG were, firstly, to improve my teaching, and teaching skills. This would in turn benefit my students in learning better and grasping the subject in a more meaningful way. Secondly, I hoped that by going through the Action-research and seeing it to the end of the planned period, there would be a lot of revelations which, if published and distributed to others, would prompt them to take it up. Whatever the findings and conclusions of the group, they should be used by other teachers for the general improvement of our education - not just in Development Studies only, since some methods can or may be adapted to other subjects.

The group of students that was involved in the Action-research started in August, 1984, in Form B 1, and continued until May, 1985, when they were in Form C 1. Though entrance into the School is highly selective the group showed a very wide spread of ability. The group was selected because I was teaching the class and no other criterion was used for the selection. The school is long-established and well-equipped, and has a good standard of discipline.

During the research period, my investigations were aimed mainly at group work. Though this was the major focus, several other activities which I wanted to observe were brought under the spotlight. These include the use of higher-order cognitive skills, the skill of observation, and the ability to pose questions for research.

Why I chose to pursue this particular strategy

It was because I wanted to explore what happened in small group discussion. I had a feeling that there would be better relationships between and amongst students within groups. The students would be able to help each other along and also each student would feel an urge to participate in discussions within the group and thus be able to learn better.

On the other hand, I was afraid that in group discussion students often did little work, and therefore little learning was taking place. To see which of these rival hypotheses was closest to the truth, I embarked on a series of lessons, including field trips, which were to be observed and monitored by tape recordings.

The groups: The selection of group members was left to the students; they decided which group each wanted to join. There were 6 groups of about 6 students each in a class of roughly 40. The groups have been kept stable, with no people changing groups, since the beginning of 1984.

CYCLE ONE: September, 1984

In the first cycle the topic was based on human resources; the sub-topic dealt with population. Students were provided with booklets called The People of Lesotho, published by the I.P.P.F., which they could refer to, and they also had Using our Resources (Unit 3 of Development Studies for Lesotho) which contains the section on 'Human Resources'.

In the first lesson students were given an oral pre-test, through a series of questions written on the board. These included:

- what is 'birth-rate'?
- what is 'death-rate'?
- what is the present population of Lesotho?
- what is the present population of the world?

They were able to answer some of the questions. I did not provide answers for the others, but left them open, telling the students to refer to the literature and come up with answers the following day. However, from the answers they gave, it was evident that only about three or four students had been able to scan through the reference material in their study time.

The conclusion I drew from this reaffirmed my feeling that students always expect 'the teacher' to give answers to any and every question that they do not know or do not understand. They feel there is no other source except the teacher, regardless of whether or not another source is made available to them.

Lesson Two

We had to go over the text of the relevant chapter in Unit 3 and the I.P.P.F. book in class in order to find the answers which had not been given the previous day. I tried to get them to produce the information through giving them open-ended questions, and at no point suggesting the answers. The replies, questions of clarification, and comments came from relatively few people, i.e. they were not spread evenly throughout the class. The following extract gives the flavour of the lesson:

T Yesterday we went through some questions on population which we said was in connection with the human resources that we are going to talk about. Now we had some questions which we left unanswered, which I thought, er, you would be able to answer today. One of them was about the world population. Did anyone find anything about it?

B1 Sir,...

T Yes?

B1 3,461 million

T (writing on board) 3,461 million. Where did you get the information from?

B1 From the, er, geography textbook.

T From the Geography textbook. O.K. Right, you are more or less correct with that, even though the figures have risen. I think that should be from an old textbook. Did anyone try to find....? nobody?

SS (query exactly what is the question)

T World population figures; one of the questions that was left unanswered yesterday. And he says its about 3,000... Now, the population should be just about 4,000 million (writes figures on board) world population. Right, now we talked of the birth rate and death rate (writes these phrases on board). Did you find out about birth rate? What it was?
(silence)
How many of you read this yesterday (the booklet)? You read it? Moorosi, did you read this?

B2 Yes, I did read ...

T Huh?

B2 I read, sir, but only a little

T But?

B2 I read that thing but I didn't understand it, sir.

T You didn't read much? Does that mean only one person read this?

B2 I didn't understand it, sir.

T But did you read it?

SS Yes, sir (several voices)

T O.K. Now, Birth Rate. Is there anything about birth rate or death rate in this?

SS Yes

T What does it say the birth rate is?

B3 37 point one thousand

SS (laughter)

T Right. Talking about the birth rate of Lesotho. Right, now what about your textbook? Did you come across birth rate or death rate?

SS No

T No? That means it wasn't read! Because it's there! Page 58. Yes?
(confused voices)
And now what... Lesotho's birth rate is 37, but now what is birthrate? What does that mean? If you come across that number, 37, what does it mean to you?
(several voices)
Right, that 37%, what does it mean to you? What does it tell you?

SS Sir, sir

G Out of hundred percent, 37 die every year.

SS No

T Do you agree with that?

G Out of hundred, 37 die....

T Let's stop there, and we'll get it. Now what does death rate mean? O.K. When we say that death rate of Lesotho is 14, what do you understand by that?

SS Sir...

T Yes?

- G It means that out of a thousand people, 14 die each year.
- T That is exactly what I want. Now when you say 14, right, er, I'm not even sure whether you understand or you don't understand what that 14 means. That means that out of every thousand people that you 14 people are going to die.
- SS (murmur) G 14? (murmurs of disagreement)
- G 14% or 14?
- T O.K. Just turn on to page 58

Group Work

The feeling I had after this was that when students are in class in a large group, there is usually not much chance for full participation of all the individual students, hence in the lesson that followed I concentrated on group work. In this lesson the students were given a population graph of Lesotho over the last hundred years. They had to interpret the graph through structured questions which I had prepared. The various groups were to discuss and record their answers. Two groups were taped.

From the transcripts, the groups were looking for answers that were fixed and of a 'given' nature. There was not much display of inferential thought or reasoning. One group did most of its discussion in Sesotho. This group did not make much impression because they tended either to discuss things outside the subject, or to look for answers to the questions without deeper discussion and analysis. They wanted the 'right' answer and wanted then to put it down in correct English. The second group talked mainly in English and it was able to show some signs of ability to think and reason, though they still apparently lacked the skill of discussing and following through their discussion in an organized manner.

However, one thing that came to light was that several of the students who in class do not participate much verbally, by asking or answering questions or giving comments, did contribute when in small groups.

Here is an extract from Group 2's discussion. The question is: 'What can you say about the population from 1950 onwards?'

- It has increased a lot / It has increased / it was increasing
- It was increasing more than the more than the More than the years ago.
- But what can be the reasons?
- (two at once) Because there were no wars.
- there was peace / people were living at home / peacefully
- There was time for working and having enough FUN
- It was increasing quickly
- Because people had died
- It was increasing quickly
- Just look at the form ... from 1890 the difference was just small ... but from 1950 it started to increase, you know, by large numbers

- You look at the difference between (unclear)
it's more than this one
- Yes, that's why I say it increased more than, er, between
eighteen nineties and nineteen forty
- why was this happening?
- Because there were / peace / they had time ...
- People had no wars / We should
- There were no more wars / That was it.

CYCLE TWO: March, 1985

In this cycle we were going to concentrate on the formulation of research questions, with the purpose of making an enquiry. What led me to pick on this stems from the hypothesis (formulated by the research team as part of the 'General Idea' in June, 1984) that students regard knowledge as finite, closed and fixed, and as something that they cannot get themselves.

I chose field-trips as my starting point. Firstly I made out a questionnaire on a visit to Masianokeng Cannery. Before the outing, we went over the questionnaire in class, trying to clarify whatever was not clear. I must emphasize that the questionnaire was made up entirely by me as the teacher, with no consultation whatsoever with the students.

Trip to Masianokeng Cannery

The group went out to the cannery the following day. They were accompanied by two other teachers (incidentally, the trip was organized by the Sesotho Department and was destined eventually for Thabo Bosiu and Morija). The situation at the cannery was such that they collected answers from different sources, and from different people, and some of the answers were different, or at least varied slightly.

Debriefing Sessions

The week following the trip we prepared for a debriefing session by firstly dividing into groups. The groups were to compare the information collected by group members, and to fill in any missing answers on their questionnaire. The object of the exercise was not just to fill up the gaps, but also to note their own observations, or any other information relevant to the visit.

Three of the group discussions were taped, including that of Group I, the 'Sesotho Group' who had been recorded previously. This group went through all the questions quickly, giving the answers without discussing them. Where they came across a question that had several answers, these were not discussed, e.g. in answer to the question: 'Is it a private or a government enterprise, or both?'

G2 It is private

G3 What is L.N.D.C.?

G2 I will answer

G1 I also know

G4 And me also, but I haven't taken a paper.

G1 Why is it located at this location?

But after quickly going through the questions, they returned and started rechecking, asking each other for help on things that were not clear. As far as this part was concerned, it was useful because it fulfilled the intended purpose of the exercise.

In comparing the two transcripts of this particular group, there were several advancements. First, this time they used English throughout, whereas previously much of the discussion was in Sesotho. Secondly, they organized their work better, in that they started off by going through the questions, just to set their frame of mind, and then went over them more systematically. Although they had some different answers, this group was able to bring the data from the different sources together. Thirdly, they were able to realize there might be several reasons for something, and therefore they should accept several answers. This differs from their first session, where they went through the questions laboriously trying to find the one 'right' answer. In this session they proved themselves capable of going beyond their normal expectations of finding just one correct answer.

Here is an example of their conversation:

- G1 'I want to ask a question, if they say they get a profit when canning asparagus, do they mean that they don't get - they don't get profit on peaches, beans and green beans?
- G2 They say so
- G3 I think they talk about asparagus because asparagus is the one which improve the country.
- G4 Which gives the most - others still give - show profit but asparagus is the most, top most.
- G1 No. 3, 'Why is it situated at this location and not at the industrial site in Maseru?
- G2 It is here in Masianokeng because there is much space for the factory to be situated, and it is near the fields so that - and near the river.

Report-back Session

The next lesson was a report-back from the group discussion on the cannery visit. This was done by one member from each group reading out the answers. After each statement I scribbled an abbreviated version on the board, numbering each answer as on the questionnaire. Thus there was a full summary on the board. After the first group had given its answers, I asked the other groups to add any information left out, or if they had any observations to make on the answers already given by the first group.

As the lesson proceeded, I probed some of the answers given, as this extract from the transcript shows:

- G No. 10: Not everything is allowed to be bought in tins. Asparagus is bought in tins and others are bought in cases.
- T Bought in tins, and?
- G Others are bought in cases.
- T Now, you say not everybody is allowed to buy ...

- G Oh. I see. I see. Now what was our question for 10? Now who buys the products the factory produces? And.. Well. it says everybody buys. But anyway. that's a good point. You said you can buy in cases and also in tins.
- G No sir. (several voices, unclear)
You can buy in cases, but asparagus in tins...
- T On, I see. That is the beans, peaches and peas. You buy those in cases. Now if these are being bought in cases, do you think er, people, just people in the village will buy, are buying from this place? You say everybody is allowed, but now you've got to buy in bulk, in cases. Do you think everybody will be able to, everybody buys, let us say beans, from...
- SS (unclear)
- T 24? Now people usually, do people usually buy things in cases?
- SS No
- T Why?
- G They are expensive
- B Because it would cost a lot of money.
- T It does cost a lot of money. And I think, you said earlier that everybody is buying, do you think this is correct? But anyway, which kind of people would be able to buy in cases?
- S Businessmen people
- T Mainly businessmen.
Now, what about this No. 7? What is meant by this 'dissatisfying profits'?
(three hands up)
Moeketsi?
- B It means were less profits.
- T The profits were less? Were they less than other years, or they've been having no profits? What's been happening? Was it lower than other years? Anyway, why was it, why were they low? Were you given any reason for that, or the reason for being low? For having that low profit? Mamokete? Were you given any reason for low profits, or is there anything that you can think of, which you think might have.... made the profits to be low?
(shakes her head) (a few other hands up)
Were you given any reason? Is there any reason you may think of?
None?
- B Last year the profit was less .. (unclear)
It was better than the previous year.
Somebody said that this, that the profit is increasing year by year.
- G The factory is growing.
- T Yes, we may conclude that the factory is growing. Do we agree on that conclusion?
- G But it's growing slowly.
- T Growing slowly?
- G Yes
- T What are the reasons for that?

G Because it's not improving.

T It's not improving fast. But now, with these very low profits which they've been having, do you think there's anything that has, that, that's affecting, or that is determining this very slow growth? Why do you think it's growing this very slow ... Florina? What could be the reasons for this slow growth? Now, if you look at the er, agriculture in the country, what has been happening to agriculture recently, to agricultural production, recently?

B Last year there has been a shortage of rain.

T There was drought in the last few years. Do you think this could do you think this could have an affect on the profits or on the slow growth of this, of the cannery?

SS Yes

T How? Because people just talked about having no water. Yes, Thekiso?

B They could use that water for irrigating the crops.

T Which water?

(Unclear due to the bell ringing. Something about the river)

T And along that place, where do they get water?

S From the river.

The above extracts show the probing questions which I threw out in trying to focus the students' minds on making their own observations, trying to lift their level of discussion until they were able to make inferences and to relate cause and effect. To some extent this was achieved in the students' oral work during the class discussions; however, when it came to writing the levels were not so high.

Written reports

I gave them an essay to write, to describe the effects of the Cannery on the development of the area around it and on the country as a whole. However, most of the data they had collected was factual. Many of the students found it quite difficult to use the information to sustain such an argument, and to apply what they had found out to the national scene. This further reaffirms the finding about lack of practice in thinking. Under guidance they are able to conduct a discussion, in groups or with the help and prompting of a teacher. But when it comes to individual writing few showed the necessary cognitive skills.

CYCLE THREE: April-May, 1985

This cycle was essentially an extension to the previous one, and involved a second visit, this time to the BEDCO Centre in Mohale's Hoek. The approach this time was a bit different in that the questions that went into the questionnaire came from the students.

One of the big problems my group had was the formulation of questions for research, in order to discover things for themselves. So the next 'Action-Step' that I planned was to train them to prepare their own questionnaires; this, I thought, would be a step forward which would help them move away from the idea of knowledge as something one is just given.

Further. I would encourage them to check the information by observation and by challenging where necessary; in this way I hoped they would go beyond the questionnaire itself.

Preparation of the questionnaire

In preparation for the outing, the students went into their different groups in order to make up their questions. The following lesson all the questions were written on the board, leaving out any repetitions. However, I found that writing on the board took just over 20 minutes of the lesson and students were left idle for all that time. It would be advisable to ask the students to put the questions on a large chart which can be quickly displayed after completion.

The third preparatory stage was to categorize the questions and put them in a more or less logical sequence. Because of lack of time, I helped categorize the questions and brought them back to the students for them to put into order. This having been done, part of the lesson time was spent trying to direct them towards making their own observations and to encourage them to look beyond the answers they might get. (See Appendix A)

The visit to BEDCO

The outing was set for a period that came at the end of the day. The students were taken around the workshop and shown how the tools and machinery were used. Afterwards, the workshop manager read through the questionnaire and answered each question in turn. As this was happening, the students were writing down the answers. Due to circumstances beyond our control, we were able to go into the carpentry workshop only. We could not visit the other enterprises at the Centre.

Attitudes towards knowledge

One of my hypotheses was that the students see knowledge, and learning, as 'closed'; they look for 'the answers' and do not seek to find out more. Evidence for this is that when they have a prepared questionnaire they tend to depend on it entirely, and just ask those questions. Then they jot down the first answer given, accepting it without questioning further or even seeking clarity. I had hoped that at BEDCO they would go beyond their questionnaires and ask more questions.

However, in my observation on the visit, very little of this happened. This could be attributed firstly to the way that 'going over' the questionnaire was conducted, in that the workshop manager read the questions and answered to the whole group. Had there been several people answering questions with smaller groups of students, there might have been a better and closer look at the answers given. I say this in particular because I have seen how the relationship and comradeship within the students' small working groups has built up through 1984 and 1985. They are now at the stage where they feel free to ask within the group if they are not clear what someone is saying: they have become much more able to help each other along.

The second reason for the lack of questions may be that since the students had made up their own questionnaire without my help, they may have felt satisfied that they had asked all the questions they needed to. They had received the answers they wanted, and did not feel the need to go further.

Here the transcripts provided me with feedback on their ability to think. Three of the groups had been taped while they were discussing the questions to be put into the questionnaire. When I listened to these later, I was pleased to see that at least one group - of girls - was now able to discuss ideas in the light of their own experience, note where they were still uncertain, and formulate appropriate questions. This shows a commendable openness and independence in learning.

In this extract, they are discussing the difference between L.N.D.C. and BEDCO:

- L.N.D.C., it encourages the industries to set up in Lesotho
- I see
- But BEDCO ... to encourage Basotho to set up small industries
- But what is the difference?
- There is the difference between an industry and those things in the LNDC Centre, things like shops, supermarkets and all those, I mean in BEDCO there are things like industries
- Is those shops ... are those shops industries, the ones found in the LNDC?
- The examples of LNDC, they are companies, including hotels.
- The examples of BEDCO are furniture, shoes, metal goods and knitwear (she is referring to the textbook at this point, I think)
- Eh, there's difference
- What is it then?
- They are different because you should ... you should understand that BEDCO encourages er ... industries
- small industries....
- where they can make their own goods.
- Er, where people produce their own goods and in the LNDC they only set up, er, the rules and those people bring their goods to sell, they do not produce there (unclear)
- So there is the difference between LNDC and BEDCO
- What were you going to write here when we went to discuss about LNDC and BEDCO ?
- Yes, we can do it ... because we are not really sure whether it only encourages small industries; does anyone know whether it encourages those small industries or even those, those super-markets, shops ...
- I've never heard of such ...
- But there is a shop on the Centre
- But it is not included in the buildings, it's just a shop for food
- But there is also a salon there, Does it also fall under the industries?
- Let's suppose that BEDCO does not only encourage people who are coming to manufacture things.
- Suppose what?

- They .. people who want to do with trade, u oa bona ...
- No, we better write the question because we can't come to the conclusion.
- So what's the question.
- 'Does it only encourage industries?'

Report-back

Back at school we had a report-back session, which was held in class. The main purpose of the report-back was to try and make sure everybody had all the information, and also to try and bring out any further information they might have gained from personal observation or from questions. As they gave the answers, I would try and pose some questions which revolved around the answers they gave, thus bringing out the full meaning and implications of the information they have been given. The following extract deals with the question about training:

- T 'What kind of training does BEDCO provide to the people?'
- S Courses like sewing courses. Shoe making.
- T Okay, they do try to provide people with some training to improve them. You can have your shoe-maker, er, somebody who mends shoes but with some little bit of training, you find that his work may improve, you see that? And what about in business? What are people trained in, for business?
- S Businesses -
- T In businesses, er - what kind of training do they get?
- S They (inaudible)
- T Yes, Now, he's just talked about skills, making things eh? Yes, Moeketsi?
- S Teaching how to use machines.
- T Ja, giving courses in how to use machines and how to improve their production and so on. Let us take a shopkeeper for example, how do they have their training? Yes?
- S They are trained how to use -
- T Who?
- S They employ skilled people.
- T Where do they get the skill from?
- S From their schools.
- T You mean that you leave this school now, you go and set up a business, you shall be skilled when you get there? Yet you've never been in business before?
- S They have night school business studies.
- T Well, business studies, that's one thing. You can't do accounting if you are not trained in, er - you can't run a shop, er - you can't work on your books on accounts without having some little training on how to keep books and all that. So even in businesses they try to train people how to manage er - their businesses also

- how to keep books. hm? Ja. bookkeeping.

Though they were given only one part of the story about training, through probing, I was able to make them apply this to the broader spectrum of enterprises that BEDCO is involved in.

Analysis of lessons

I was interested in comparing this report-back session with the introductory lesson on population that I gave at the beginning of the research. The consultant had analysed part of that one for me, so that I could see how far my questions had been 'open-ended', and how far they had encouraged higher-order cognitive skills and independent learning, since these had been among the main themes of my research.

By 'open-ended' here I refer to the students being able to look at a question as having several possible correct answers to it. Independence is related to open-endedness in that when the student can accept that there are many answers to a question, he can then explore on his own without regarding what the teacher says as the only or final answer.

The consultant's preliminary analysis of the report-back session on BEDCO is set out below.

Preliminary analysis of types of questions and answers

Teacher questions

Fact.....	32	
Comprehension/explanation	24	(1) Although the questions appear to be evaluative, students answered them factually.
Reason/inference	4	
(1) Opinion/evaluation.....	3	
Total	63	

Student Answers

Fact.....	39
Comprehension/explanation/ example.....	26
Reason/inference.....	4
Total	69

Student Questions (initiated by students)

Fact.....	7	
(2) Comprehension/explanation	3	(2) Most of these student-initiated questions came in the last few minutes. 5 came from one boy alone.
Reason.....	1	
Total	11	

Although factual questions and responses form the largest category, several other types are well represented. The predominance of factual questions and responses may be partially due to my wish at that stage to tie up all the facts the students had collected, with the hope that in the future they would be able to recall the facts and to apply them in a wider sense, thus showing their independence and open-endedness.

Evaluation

We attempted to test these factors by setting test questions which embraced a wide range of cognitive skills (see Appendix B)

Conclusions

In conclusion, I would like briefly to reflect on how far my expectations were fulfilled, and on some of the unexpected findings which came out of the whole exercise.

Firstly, a personal view is that I have, through the Action-research, been able to raise my level of consciousness and awareness of my teaching, in a way I could not do before. This has been a great help towards improving my teaching. I have got a clearer focus on various teaching strategies and I now pay more careful attention to some, at least, of the students' learning problems.

Secondly, on the student level, I have been able to gain some insight into some of the learning processes. I am not going to define what 'learning' actually is - another case-study deals in more detail with some of the cognitive aspects - but just make some general points about my experience.

I have been able to see my group move from what I may term a 'lower' level to a somewhat 'higher' level, mainly in conducting their discussions in groups. When I look at the transcripts of the first small group discussions on population, the second ones on the visit to the cannery, and the last one preparing the visit to BEDCO, I can observe degrees of advancement in their handling of discussions.

However, one skill which I found very much lacking was the 'thinking' skills' i.e. the use of the higher-order cognitive processes. I say they were lacking in these, relative to my expectations. I have been all along thinking that if the teacher 'teaches' students and exposes them to new knowledge they would be able to 'learn'. But my exposure to Action-research has refuted this belief that I previously had. I would like, in the future, to concentrate much of my time in trying to cultivate these skills in students. It should make a teacher's work lighter in the long run, in that the students once they have gained confidence in themselves, are able to do much of the work on their own and with less dependence on the teacher.

On a last note, I should again emphasize that whatever has gone on in this case-study should not be regarded as a prescription to the teachers who read it. The teacher is free to follow this pattern, or to modify it, depending on circumstances, and on what his goals are; he may, indeed, wish to take a completely different line. It is through being involved in Action-research that one can and will find out about either the merits or demerits of the whole exercise, and to look at it critically.

Bedco Visit

- 1 When was Bedco established in Lesotho?
- 2 When was the Bedco Centre in M'hoek established?
- 3 Who owns Bedco
- 4 What is the purpose of Bedco
- 5 How far are Bedco's goals being achieved
- 6 How many Bedco Centres are there in Lesotho and where
- 7 Why was it decided to have a Centre in M'hoek
- 8 What type of enterprises does it concentrate on
- 9 What products are produced here
- 10 Are products produced here sold locally or exported
- 11 Are retailers allowed to buy from Bedco and sell to consumers
- 12 Is Bedco open to Lesotho Citizens only or also to foreigners
- 13 Does it lend money to whoever wants to set up a business
- 14 Does Bedco provide any training to people? What kind?
- 15 What impact has it had on other local producers?
- 16 Does Bedco encourage labour or capital intensive methods?
- 17 Why is the Centre situated here and not in the Centre of town
- 18 Why are Bedco Centres not established in all districts
- 19 What problems does Bedco have
- 20 What future plans does it have

APPENDIX B

St. Stephens

TEST QUESTIONS FOR C 1 Higher Order Skills

Recall

1. How many years has BEDCO been going in M. Hoek?
2. Who owns BEDCO?

Comprehension

3. For what purposes was BEDCO set up?
4. Why does BEDCO not offer help to foreigners?

Applications

5. From what you understand of BEDCO's work and its effects on places, write one or two paragraphs on the following:

"Explain all the consequences that are likely to happen for the people and town of Leribe when BEDCO opens a centre there."

Evaluation

6. Do you think the Mohale's Hoek BEDCO is successful, judging it by the following criteria:
 - does it provide useful goods and services?
 - are the products of a good standard?
 - are the prices fair?
 - does it provide jobs?
 - is it making enough profit to re-invest, so that it can expand?

Give reasons for your answers, using the evidence you collected on your visit. (If you do not have enough information to answer, any part of the questions, say so.)

Generalising

7. Describe TWO WAYS in which BEDCO is helping the development of Lesotho as a whole, explaining your answer fully, with examples.

Janet Stuart

Introduction

During the course of the Action-research project, I had a few opportunities to take classes with the express aim of teaching cognitive skills. As part of the research, I was trying to develop some forms of test items which would measure various kinds of thinking about facts, rather than just the recall of facts. As the subject was Development Studies, I was working in a relatively unexplored area. There has been a lot of research done on cognitive development in maths and science, but very little in the social subjects like history, geography or social and development studies. So there is not much in the research literature to help us to define precisely the kinds of thinking which are relevant in these subjects, and even less on how to measure them with pen-and-paper tests.

Two schools kindly allowed me to work with their Form C classes. In July, 1985, I gave four double-period lessons at Makhetheng High School.* The Form C's had returned early to prepare for exams; as they did not do Development Studies, we time-tabled my lessons as 'Thinking Skills', which were to help them answer exam questions more competently. The following year between March and May, 1985, I took the Form C's at Mabalane High School* for one period a week, using a Development Studies lesson. The following account is illustrated from both schools.

The Problem: A General Idea

Earlier experience, particularly in examining at J.C. level, had shown that secondary school students frequently perform at a surprisingly low level when faced with questions demanding sustained reasoning, argument, or problem-solving skills, especially when they have to write rather than answer orally. Why do they perform so poorly? Several alternative hypotheses suggested themselves, viz:

- (1) Students are stupid.
- (2) Students are lazy.
- (3) Students are prevented by poor command of English from writing good answers.
- (4) Students do not realise what is required of them.
- (5) Students lack practice in using such skills.
- (6) Teachers seldom demand such skills from students.

There are obviously some slow and lazy students, but many are bright and most are well-motivated. The teaching of English requires a long-term programme which lies outside my expertise. So I decided to concentrate on the last three hypotheses. I had some evidence from observing classrooms around the country over several years that such skills are seldom the main ingredient in a typical lesson; what would happen if the skills became the central focus of the lesson?

* Pseudonyms.

I decided therefore to carry out a small piece of Action-Research. The 'General Plan' was to deliberately introduce these skills into the classroom and monitor the results as carefully as I could. For the 'reconnaissance', I would give each class some kind of pre-test or preliminary exercises to explore their level of skill. My 'Action Steps' were to explain explicitly to the class what kinds of skills were required and where they had fallen short, demonstrate good examples of such skills and then give them practice in using the skills. Thus I embarked on trying to 'teach for thinking' through Action-research.

What is thinking?

Thinking is one of the most complex of psychological phenomena and I do not intend to discuss its nature here. A good short definition is given by Edward De Bono in his book Teaching Thinking

'Thinking is the deliberate exploration of experience for a purpose.'
(De Bono, 1978)

(A short reference list of useful books, including this one, is given at the end of this chapter.) As a practising teacher of Development Studies, I chose a few basic types of mental activity which seemed, on the basis of experience, to be necessary for students studying social subjects. I think it likely that the same or similar skills are required for such subjects as history, geography, sociology, general economics and so on.

I classified these activities, and the exercises in which I hoped they would be embodied, roughly as follows:

- (A) DIVERGENT THINKING, or 'How many different ideas can you think of?'
- (B) RETRODUCTIVE EXPLANATION, or 'How could that have happened?'
- (C) HYPOTHETICO-DEDUCTIVE REASONING, or 'What would happen if...?'
- (D) JUDGEMENT or 'Let's look at all points of view.'
- (E) ANALYSIS AND DECISION-MAKING, or 'Solving Problems'.
- (F) WEIGHING ARGUMENTS, or 'Sorting out the evidence.'

However, thinking skills cannot be rigidly demarcated and the above categories overlap and flow into each other, as will be seen. The classification is merely a heuristic device: some useful labels to show what I was focusing on at any one time. Nor is the list a complete one; there are several important skills, such as inductive thinking (generalizing from several instances), applying principles, and evaluating according to given criteria, which I will not be discussing. My intention here is simply to describe what I did in the short time I had with some Form C students, in the hope that other teachers may like to try out similar activities, and to carry the investigation further.

(A) DIVERGENT THINKING, or 'How many ideas can you think of?'

I have found that students very rarely write down all the ideas they have, they neither give all the relevant facts, nor cover all the relevant arguments. In marking exams, one so often finds students have not given as many points as they should have; they will be content with mentioning one or two reasons or causes instead of covering all the relevant ones.

The classic way of helping students to overcome such narrow thinking is to get them to brainstorm along such lines as:

'How many uses can you think of for a brick?' (or a paper-clip, or a mealie cob, or any other common item)

and encourage the most original and far-fetched ideas, just to stretch their minds beyond their everyday conceptions. (See De Bono's books, especially Lateral Thinking for further suggestions) At Makhetheng I combined this with:

(B) RETRODUCTIVE EXPLANATION, 'How/why could that have happened?'

This simply involves thinking of the possible, likely or logical causes of a given event.

I wrote on the chalkboard

'Why did Ha Sechaba's football team lose this week after winning every match for the past three months?'

and invited them to brainstorm all the possible reasons they could think of.

A few hands were hesitantly raised:

- Perhaps they were tired?

I wrote it on the board without comment.

- They thought they were the best.

- They didn't practice enough.

I wrote each one up as it came, neither criticising nor praising. I encouraged more ideas. They became more daring, more imaginative:

- The captain was drunk.

- The referee had a cousin on the other side.

- The ground had oil on it.

and so on. Gradually they gained confidence until we had some 15 plausible and not-so-plausible reasons on the board.

I cleaned the board and put up a new problem:

'A man came into his office, sat down, and fell asleep. Why did he do this?'

As they were sitting at double desks, I asked them to work in pairs on this one, and together list all possible reasons for such an event, giving them five minutes.

There was an improvement one pair produced 12 good, plausible reasons in the time. But several still only had one or two reasons, so I wrote up a third problem:

'The women of Ha Maama have a communal garden. Usually they produce enough vegetables to feed their families and have a surplus for sale. This year there was no surplus. What could have been the cause?'

We did this on the board again. The students were taking agriculture, and in a few minutes the board was completely covered in suggestions, 20 or 30 in all. Some were couched in scientific terms

- The soil had lost its fertility.
- They forgot to order pesticide and the insects ate them.

while others gave social reasons:

- They quarrelled.
- Thieves stole the crop.
- The families ate more this year because they learnt about nutrition.

I had the impression that the majority of students participated, but unfortunately I had no observer to mark down who answered and who remained passive.

Finally I asked them to produce a similar kind of question and try it out on their deskmates. These results were the most striking of all: they had entered into this like a game and were using their brains to good purpose. Here are some of the 'problems' they set each other:

- Our chief was ruling people very well for the last five years. Now he is sleepy and inefficient. What is wrong with him?
- School fees are increasing every year. Why?
- Mpho was a very clever girl who attended school at Morija, but now she sits at home. Why is this?
- Last year Fairways Supermarket was one of the biggest shops in Lesotho and it was full of goods to sell. But now it is empty. Why did this happen?
- The Principal has run away with the school money. Why did he do so?
- Robberies are increasing in this area. Why might this be?

At the next lesson I reinforced the practice by using the question that I'd set in their pre-test:

Nthabiseng's Primary School Record

Here is Nthabiseng's primary school record. It shows her place in class at the end of each school year:

Std. 3	Std. 4	Std. 5	Std. 6	Std. 7
4th	3rd	1st	20th	12th

- What do you notice about her work?
- Write down as many reasons as you can think of to explain the changes.

I asked them to brainstorm answers on the board. Many more suggestions were made than had appeared in the test scripts, so I was encouraged. When two weeks later, I gave them a post-test I included the following 'problem-story'.

Paul Peete's Family

The family of Paul Peete seemed to be rich. They had a 4 roomed house built of cement. They had many cattle and sheep. They used to hire a tractor to plough. The five children all attended school. The wife used to work hard growing vegetables in the garden.

But two years ago we noticed a change. The two oldest children left school. Many of the sheep have gone. This year they used cattle for ploughing. The family had no new clothes for Christmas and the wife now brews beer for sale and neglects her garden.

Question: What do you think can have caused this change?
Suggest as many reasons as you can.

The scores, measured by the number of possible reasons they gave, were considerably higher. On the pre-test, only two students (out of 35) gave more than three reasons and the top score was six. On the post-test, 18 students gave more than three reasons, and the top score was 26!

In 1985 I carried out a very similar exercise with Form C at Mabalane. They had done 'Ha Sechaba's Football Team' in a pre-test, and nobody had produced more than three possible reasons. So I did it with the class on the board. I got the same slow start, but when we'd got to ten reasons, more and more hands were going up and more imaginative answers were forthcoming. They were beginning to understand what was being demanded from them.

As this was a Development Studies class, I gave them:

'The price of school uniforms went up this year. Why could this have happened?'

We did this on the board too. It went much more slowly because I had to make sure that the reasons were based on good economics. Someone said:

- Because there were more schools.

So we discussed how the rise in demand might encourage the manufacturers to raise their prices. Others suggested:

- The price of cloth went up.

- The uniform lasts longer

This one puzzled me, but it turned out he meant that the uniforms were of higher quality and so cost more.

The final question was:

'There are more unemployed men in Maseru this year than last.
What reasons can you give for this?'

Here they worked in pairs. One pair got ten reasons in five minutes and most thought of three or four alternatives. Again, in checking these, one had to ensure that the reasoning was logical and they knew what they were talking about. For example:

S1 The population had risen.

T Do you mean more babies were born?

S1 Yes.

T ~~How~~ would that affect unemployment? Babies don't work.

S2 No, we meant more people came into the country from South Africa.

Often after questioning, what had seemed at first a stupid comment, when explained showed the student had in fact reasoned well. But his/her lack of English competency had prevented a full explanation. For example,

- The government didn't pay.

turned out to mean that the government had very little money and had sacked some civil servants. The students were being forced to express their thoughts more clearly. This gave them useful practice.

Reflection

I was, on the whole very encouraged by these results. In both these classes, when I explained to students that they should think up several possible causes rather than just one, they responded well. They were certainly able to think retroductively. They had not done so at first, or done so in a slipshod manner because they had not been shown how to use this skill in the context of the school subject. Like any skill, they would have to practise it before it would become habitual to them. And as the example of the 'communal garden' shows, they will do better if they have first acquired some knowledge or experience about the topic. Both the knowledge and the practising of the skill seem necessary.

At this point I had gathered some evidence to support my hypotheses, so I continued to try out various types of thinking skill. So far I have described mainly oral or short written exercises. I also collected some data from students' essays: these were designed to tap rather more complex skills

(C) HYPOTHETICO/DEDUCTIVE REASONING, or 'What will happen if....?'

In spite of its grand name, this is a kind of thinking which we all use at many different levels in our daily lives, as well as in formal education. In simpler forms, it merely means applying our past experience to infer what is likely to happen if we carry out some action such as 'If I plant my seeds now the plants are likely to dry up before the rain comes'. In more complex forms, it is the basis of much scientific and research work.

This type of reasoning is, or should be, common to most school subjects. Applying it to Development Studies, I decided that if students were given a set of premises - some facts, a situation, a principle they should be able to infer or deduce certain likely consequences. Again, I wanted to combine this with divergent thinking. I wanted students to use their imaginations and to think as widely and creatively as possible. So in my first attempt I gave them a rather far-fetched situation. Later, I found this had been a mistake.

I split the class in Mabalane at random and gave two different versions of an essay topic to the groups.

Version A

'It is difficult and expensive to develop the mountain areas of Lesotho. Therefore the Government should tell everyone to move to the Lowlands.'

What do you think would be the result if this happened? You should give as many possible consequences as you can think of, writing about 20-30 lines.'

Version B

'It is difficult and expensive to develop the mountain areas of Lesotho. Therefore the Government should tell everyone to move to the Lowlands.'

Would this be good or bad for the development of Lesotho? You should write about 20-30 lines, giving all the reasons you can think of.'

Version A was straightforward I thought, and required them merely to deduce possible consequences, using their knowledge of Lesotho and of rural development, which they had recently studied in class. Version B was more complex: it required three or four stages e.g.

- deducing possible consequences
- defining development
- evaluating the consequences against the definition of development
- summing up

I set it merely as an exploratory exercise: it was the first homework I gave the class and I wanted to find out what they were capable of. I expected Version A to be done much better than Version B.

This was so, but not in the way expected. The essays produced by the two groups were rather similar sometimes one would not have known from the answers which version had been given! What had happened? Clearly the students hadn't read the questions properly. (I noticed on the scripts that they had copied down only the quotation, NOT the instructions, although I had given them typed slips bearing the whole question. to ensure accuracy.)

Many of both groups simply took the question as an invitation to discuss rural development in general terms. They had been practising debating recently in class, and this may have led to a set' towards arguing against the (rather unlikely) proposition. For example, half started off by announcing. 'I disagree with this topic'. Several went on to write quite good essays about how the government could develop the mountains, which showed me that they were capable of opposing an argument and adducing reasons for their view. This is a useful skill, but not the one demanded by the question!

Among those given Version A, over half did list some specific consequences; most foresaw only negative results, and few went beyond the most immediate and obvious points. When they did, it was to exaggerate disasters:

'Maybe we will produce nothing in the fields because we will use our fields the place of houses and there will be no fields at all.

Only one took a positive view and none tried to show both good and bad effects. Here are two fairly typical examples:

Extract 1. (girl)

I think if this can happen there will be lack of jobs. So the people will become the thieves and bandits. There will be no space for ploughing so people will suffer for starvation. There will be also lack of schools for practising for the future.

I think there will be also lack of water and nobody can live without water. We do everything with water. So the people will become to die. There will be no place for people to do their own businesses.

If there are animals they will cause soil erosion because they must feed over one place every time. Also the people can cause soil erosion because they will cut down the trees, burn dung and grass they will cause the restoration of the land.

There will be also the murders because people will have no money because of lack of job opportunity so they will want money to the workers.

(This was the most focussed essay, scoring 9 for consequences.)

Extract 2. (boy)

It should be developed even though it is difficult. It is very important to develop that part of Lesotho because it holds high percentage of the country is at mountain areas so it is where we can have enough social facilities which are needed such as hospitals, schools, clinics, etc. the lowlands will have not to be able for people from mountains and lowlands. If it can happen that people from mountain areas can come down to the lowlands. It will cause population explosion. And also their sanitation will be very poor. The hunger will take place, soil erosion will be high.

As for the mountain areas the enemies will have to desire to have some places where to hide themselves including thieves. The wild animals will increase in number.

I think it can be better to the government to apply aid from foreign. It can be in the form of money or goods or food to help develop the mountain areas easily so that people may work for food aid or good aid. As for money aid the government may buy machines that they will use to change it to better position.

Therefore can should be put down so that people will have to follow to help them for developing of mountain aid. Then the government must find out what is nessary to the mountain areas first that will help it to develop them soon as immediately.

(This was an interesting essay. Only 5 likely consequences were mentioned; but the essay brings together many concepts, such as aid; modern technology, and the proportion of land lying within the mountain region. The first sentence expresses a potential balancing of worth against effort.)

In the Version B group, most quoted similar consequences to those mentioned by Group A, but with even more exaggeraton; five more mentioned cannibalism! And six students suggested in various ways that mountain people were uncivilised or backward; one of these prejudiced essays is quoted below. (Extract 3)

Only one student even mentioned development as such, and even he saw it in purely agricultural terms (see Extract 4 below). Most students gave their opinion as requested, all but one saying such a move would be bad. One boy, after listing a series of thoughtful points against it, concluded that lowlanders should move into the mountains and then added:

'But they will not agree with that too, because there are no roads in the mountains. So I found not easy to solve this problem.'

This was the closest anyone came to a summing up. I had other data on their difficulties with balancing arguments (see section on 'Judgement' below) and so I left that point for a later lesson.

Extract 3. (girl)

It will be better if the people of the mountain areas can sat at the mountain until ever. Because here at the lowland there will be never space for build the house for them The people of the mountain are many because the death rate is high.

But if the people of the mountain will come here, we will suffer for the garden and fields. It will be better if the Government of Lesotho should build the good thing in the mountain, something like clinics and shops and made roads...

The place of mountain are too cold every time, and they don't have the cars, they are going to the town by the horses and donkeys And all the time they eat pap and porridge, they don't know how to make a balance diet. I don't want the people of mountain to come here at the Lowland. I agree with this topic which says it is difficult and expensive.....

(This essay gets one point giving one clear reason. It displays otherwise some confusion and prejudice.)

Extract 4. (boy)

But under the following reasons I disagree this topic. Instead it can be better if the government tell everyone to move to the mountains areas because as Lesotho is mountainous country at mountain there is a plenty of space for people to live there, to rear the animals because there is more grass for animals to eat, and a lot of water from that mountains which is pure for people and animals. Therefore the government must see that mountain areas should be developed.

The lowlands themselves are developed now. It can be better if the lowlands can used for farming by planting all kind of crops which are not against the weather and because as the lowlands are not slope we can make a good irrigation for our field by using that water from the rivers and then there will be no more soil erosion.

(This essay is one of the best structured of the group, in that he states his position and supports it concisely, giving points on both mountains and lowlands.)

Note on language use In these essays hardly any students showed the ability to use the conditional. The word would was used in the question, and the answer should have been phrased: 'the land would become scarce', etc. I have other evidence that this structure confuses students; many were unable to answer a question of the type

'If he had gone to the meeting what would have happened?'

This is a serious handicap for hypothetical thinking. I was not prepared to teach grammar, so I did not explicitly mention it to students. But I later discussed the problem with an English teacher, and we looked at English course books to see how and where students were helped to practise this structure.

When I returned the essays, I first clarified the meaning of 'consequences' and then wrote up on the board the obvious one:

'(1) Population density in the lowlands would increase.'

before calling for others. Slowly the answers came (it was a cold early morning and half the class looked asleep.)

S1 There will be starvation.

T Why?

S1 No fields.

T How else can one get food?

After a lot of probing and prompting we got:

S2 By earning money.

T Right! So what will be needed?

Eventually they said 'Jobs' and I wrote it up following their suggestions:

'(2) People would have to get jobs in factories, offices, shops, transport and the civil service.

We discussed how such jobs might be created; some would come from the increased population, such as more taxis being needed. But factories would require investment, either from within the country or from outside so we added to (2)

'The government would have to build more factories or invite foreign firms to set them up.'

S3 But there will not be space!

This led to a discussion of the population of the mountains; we couldn't find a figure for this in Unit 3 so estimated 200,000 and I described the multi-storey blocks of flats that can be built when land gets scarce.

I wrote up

'(3) There would not be enough room for houses so people would have to build multi-storey houses.'

By now they were more alert and one boy challenged me, a foreigner, for not appreciating the realities of Basotho life:

S3 Madam the life of Basotho depends on agriculture and they would not be able to have their cattle.

So we talked about how life had changed since their great-grandfathers' days, and how development implies further changes.

Sanitation had figured frequently in the essays, and sure enough the next speaker raised it coyly:

S4 The streams will all get dirty.....

They had all thought of this, but no one had written about the solution that would be eventually forced on people as a result. I summarised the discussion:

'(4) The land would be polluted if so many people use the dongas, so everyone would have to build toilets and the government would have to lay pipes for clean water and then for sewerage in the towns.'

My aim was twofold: to get them to think beyond the immediate and obvious to the long-term consequences and to see that there would be advantages as well as problems. Each point took some time to discuss. Here are some of the issues raised

'(5) Soil would become exhausted, so we shall have to import more fertiliser. In return, we must export more goods.'

'(6) The Maloti would become a wild-life park and attract many tourists.'

'(7) The government would save money because it wouldn't have to spend money on roads and airports in the mountains.'

'(8) People would not want to move, and if the government used force, they might rebel.'

I then set them a similar task for homework.

'If the government of Lesotho found it had enough money to make all the schools in Lesotho free up to the age of 15, what do you think the consequences would be? List as many as you can.'

I told them not to write an essay but to make a list, and mentioned for them some of the groups that might be affected: parents, teachers, students, government etc.

When I collected these scripts the next week, I found they had accurately carried out the instructions. Scores, for the number of consequences suggested, ranged from one to twelve, with most around five or six. Of the students whose scores I could compare, 15 increased their scores, nine decreased, and three stayed the same. Given that there was much less to say about free schooling, I was quite pleased. But more importantly, this time they had all focussed directly on the consequences, and most had mentioned both positive and negative ones. I deliberately did not ask them to evaluate free schooling: I had learnt from the first essays that the skills of evaluating arguments needed separate practice, before students could be asked to combine them in a single answer.

Reflections

With hindsight, I saw that the original topic, about moving people from the mountains, had not been very wisely chosen. It was a most unlikely thing to happen, and many students found it impossible to accept, so wasted ink and effort arguing against it. While I wanted them to become more daring and imaginative in their hypotheses, I was probably wrong to use such an example to test deductive thinking. I could easily have phrased it as:

'There is at present a steady drift of Basotho from the mountain areas to the Lowlands. If this movement continues for the next 25 years, what are the likely consequences?'

This has the virtue of being based on fact, of forcing them to think about a real problem of development that affects many countries; it would probably have called forth more realistic ideas, with less about 'ignorant highlanders' and 'cannibals'. Like all topics however, it presupposes some knowledge of what is in fact going on, and some familiarity with concepts like urbanisation, foreign investment, and over-population is needed. Teacher and students together can then build on these concepts and this knowledge to envisage possible alternatives the students will then be ready to take in new ideas such as high-rise buildings, and economies of agglomeration; they will be preparing for dealing with the broader concepts in the C.O.S.C. syllabus like strategies for development.

Suitable topics.

Here are a few more examples of topics I intended to try out but for which there was not time; I hope others may do so.

'Ha Maloti is a distant village in the mountains. They have no road, only an airstrip. Now a road is being built to the village. What changes would the road make in the life of the village?'

'Suppose oil were to be discovered in Lesotho; what do you think would happen?'

'What would be the consequences of building a big new factory in..... (nearest town) to manufacture car tyres?' (or guns, or ploughs, or shoes...)

(D) JUDGEMENT, or 'Let's look at all points of view'

Judgement is a complex skill which certainly involves more than just cognition: it will be affected by the values that we have all learnt from our social environment, and people with different values may come to different conclusions. But by judgement here I mean the ability to look at all aspects of a situation, to understand them, and to be able to come to a reasoned conclusion based on a thoughtful and balanced consideration of all relevant factors.

The English educational psychologist E.A. Peel (1971) did a lot of research into how adolescents judge, and came to the conclusion, based on tests done in U.K. and U.S.A. that in most children the ability to make comprehensive judgements of this kind develops measurably between the ages of 11 and 18. It is of course highly debatable whether it is a child's natural development and maturation, or his various experiences, which contribute most towards this increased ability to judge. Peel thought - as Piaget did - that it was mainly through natural maturation. But when I tried out some Peel-type problems in Lesotho Form B classes where the ages ranged from 12 to 20, I found absolutely no correlation between age and the ability to answer these problems in a way that showed judgement. Further one of Peel's colleagues had shown that judgement measured in this way improved considerably after teaching directed to such skills.

So I decided to try to teach 'judgement'.

Judging family situations

The story I gave Form C is based closely on one of Peel's tests, but given a Basotho setting.

Lineo

'Lineo is a very clever girl. She is 17 years old and writing her Form E next month. She has a younger brother called Motlatsi, who is six years old.

Last week Lineo was doing her Maths homework, in the house. The mother went out to fetch water, telling Lineo to look after Motlatsi.

Soon Motlatsi went outside and started playing with a friend. The boys were running about. They knocked over a bucket of milk. The milk was all spilt and there was no milk for supper.

a) Was Lineo a careless girl?

b) Why do you say that?

Scoring The scoring depended on the answer to the part (b). If the answer was irrelevant or illogical (or incomprehensible) it scored A e.g.

'Lineo is not careless because she is clever.'

If the answer was logical, but took the information in the story at its face value and did not go beyond it, the score was B, e.g.

'Lineo was careless because she let Motlatsi spill the milk.'

If the answer went beyond the story in an imaginative way, and took other factors into account, showing understanding of the problems and motives of the participants it scored C, e.g.

'Lineo was not really careless because she had to do her homework and her mother should not have expected her to watch the boy as well.'

In the pre-test, only a third of the students had scored at Level C. Girls did better than boys; it may be that they could identify with the main character!

Back in class, I discussed the story and possible answers. I emphasised that the best replies were those that took all the factors into account. I wanted them all, boys included to really grasp that there could be many different points of view that had to be considered, so I experimented with role-play. I suggested the following expanded situation to them:

'Lineo is doing her homework. As before, mother goes to fetch water. Motlatsi goes out and plays with Thabo. They play in 'Me Mathabo's yard. 'Me Mathabo has a big tin of freshly brewed joala. She is going to sell it because she is badly in need of money. In their carelessness, the boys knock over the tin and all 'Me Mathabo's joala is lost.

'Me Mathabo comes to 'Me Mamotlatsi, very angry and say to her: "That joala was worth M10. Pay me, or I'll take you to the chief." 'Me Mamotlatsi has just paid Lineo's school fees and has no money left. She says it was Lineo's fault. But Lineo argues that her study was more important.

Who is right? Who should pay? Why?'

First, I simply asked for their opinions. Several divergent viewpoints emerged:

- The mothers are responsible for their children.
- Those boys are responsible, but they haven't got money.
- Lineo should try to earn some money.

More or less on the spur of the moment, I asked them if they would like to act it out, and immediately there were volunteers for all the parts. Before I had time to do more than arrange some chairs for the 'Chief' and his 'men', the boys were playing football with the board duster and had knocked over a chair, then they 'ran away'.

I retired to the back of the class, and after initial hesitations, the girls got into their roles. 'Me Mamotlatsi' was particularly good, took her case to the chief, and stood up to the arguments of the men. I had to hush the 'audience' once or twice, but it got better and better, and there was rapt attention.

"Have you a licence to brew beer?" asks the chief sternly; the 'boys' try to speak, and are told to respect their elders; finally 'Me Mamotlatsi' declares she will go to the witch-doctor. Then the chief and his advisors really get into their roles; however no resolution was reached when the bell went.

I was delighted with the participation and noted how remarkably fluent the English had become, compared to their stilted answers from their desks.

I made a mistake at this point. I should have simply told them to each write down the chief's judgement and their reasons for it, for homework. Instead, I moved on too quickly. I gave them a different situation, and told them to write down the chief's judgement and his reasons. Here is the second story:

Mohapi's Peas

'Two boys are herding sheep near the village. Pule suddenly feels very ill. Sello takes him back to the village. He runs back to the sheep, but they are already eating the peas in Ntate Mohapi's field. Ntate Mohapi comes next day to the father of the two boys and demands compensation. They go to the chief.

Pretend you are the chief. You listen to all sides. Write down your judgement, and all the reasons for it.'

The results were rather disappointing; only ten of the class complied. When I scored the answers by the number of reasons given, the top score was 5, but only one student had actually shown how the chief might weigh up the competing claims.

Reflections

My interpretation of these results was that I had moved too fast. I should have allowed them to practise writing this kind of analytical judgement on the material that they had just acted and enjoyed, where the ideas were fresh in their minds and they only had to concentrate on the skill of organising them and writing them down. Instead, I had moved on to a more difficult task, and asked them to apply these skills to a new situation. So they had to work out the ideas implicit in the new story and organise them. I think it would have been more effective teaching if I had allowed them to practise on the familiar story, and then presented the new situation, perhaps even then allowing them to discuss it in class before individually writing the judgement.

I found role-play a powerful tool for stimulating their thinking. It forced them to look at the different points of view. It was motivating, and it provided oral language practice. However they needed written practice as well.

I was beginning to realise that certain key English words and phrases are necessary for dealing with certain kinds of cognitive tasks. For example, in the case of making judgements one needs to be able to use phrases like:

- it depends....
- taking into consideration....
- on the one hand....and on the other....
- while it is true that....at the same time....

I hadn't established whether the students had the requisite language skills in writing.

After the fourth lesson with this class, I gave them a post-test which included three more Peel-type items. There was a slight tendency for the levels of answer to rise, but not a significant one.

I was not really surprised. For one thing, the items varied in their demands, and two of them proved difficult. But more importantly, I realised that judgement involves analysing what is given, and then going beyond it; it includes the bringing together of different ideas from several sources, and evaluating them to arrive at a balanced and considered conclusion. Such skills have to be built up over a long time: they are not tricks to be learnt by copying a teacher; they involve habits of thinking and require practice. If students had not been exposed to this type of learning, they would not acquire it overnight. If the skill is as complex as I suspected, they would have to learn it step by step. So I dropped the Peel-type tests, and turned to exercises designed to help students to practise some of the possible component skills involved in judgement; specifically, analysing the different parts of a problem and balancing arguments. The results of Version B in 'Moving to the Lowlands' merely confirmed this finding.

In Action-research terms, I had completed one cycle and monitored my results; the findings led me to revise my 'General Plan' so that I had a slightly different focus. Three sub-hypotheses had emerged:

- (i) that students can only practise higher level skills when they are familiar with some of the facts and concepts in the topic.
- (ii) that students cannot achieve these skills unless they have command of certain linguistic phrases and structures;
- (iii) that students need to build up thinking skills stage by stage.

My next 'Action Steps' continued along the same lines, but took these points into account.

(E) ANALYSING AND SOLVING PROBLEMS

At Mabalane I started off with a story called 'Choosing the Best Solution for Rural Development'. This was designed to help students to analyse all aspects of a situation before drawing conclusions. It was my opening exercise with this class and at that point they did not know what I was likely to want from them.

CHOOSING THE BEST SOLUTION FOR RURAL DEVELOPMENT

Background

The Ministry of Rural Development says it wants to develop rural areas. But money is limited. It cannot give good facilities - schools, clinics roads and so on - to every little village. Villages must come together and share facilities.

Ha Pitso and Tlokoeng

The government official came to two villages in the foothills of Lesotho. These villages are 5 km. apart.

Ha Pitso has a population of 50 people. There is a good spring of pure water. The houses are mainly old, built of mud and thatch. There is plenty of space for new houses. The village is on top of a small hill, where the ground is flat. People walk down to their fields, which are quite badly eroded by dongas. There is a woodlot on the side of the hill. The village has no school. The children walk to Tlokoeng.

Tlokoeng has a population of 200 people. It lies in a valley. There is no good spring, so people draw water from the river, which is polluted. There is a two-roomed school, which goes up to Std. 4 only. The fields near the village are badly eroded.

Neither village has a road, nor a clinic.

PROBLEM

The government official says that the Ministry of Rural Development will build one road and one clinic in this area. They also have enough money for three classrooms.

The official suggests that one of the villages should be moved. Either Ha Pitso moves to Tlokoeng, or Tlokoeng moves to Ha Pitso. But the villagers do not want to move.

So the official says the people can decide where the facilities are built. The facilities can be all in one village, or all in the other, or divided between them. But remember, there is money for only one road, only one clinic, and only three classrooms.

YOUR SOLUTION

What do you think is the best thing to do to help the villagers of Ha Pitso and Tlokoeng? Explain in detail what you would recommend, and give all your reasons.

(W.B. There is no right answer. Your answer will be judged by the way you show that you have thought carefully about the problem.)

The results were interesting: out of 34 scripts, 14 did not address themselves to the problem. Typically, these students wrote some general remarks about rural development. (see Extract 5)

These I scored at Level 1. Another 13 students were scored at Level 2. These gave an answer to the problem, but did not back it up fully with evidence from the story. Only 7 students showed the ability to use the evidence given to argue why their solution was the best: these I scored at Level 3. In addition to marking the level, which evaluated the overall strength of the answer, I also added up the number of solutions, reasons and evidence they had given;

'S' for solution: e.g. I think Ha Pitso should move to Tlokoeng.

'E' for evidence: e.g. Ha Pitso has only 50 people.

'R' for reason: e.g. therefore it will be easier for them to move.

In a good answer, 'S', 'E' and 'R' would be closely related; however, some students just quoted evidence without linking it to solutions; others gave solutions but adduced no reasons. Reasons were, on the whole, the scarcest commodity!

The standard of English was not very high, but this did not seem to be the main reason for their failure. Only one student was totally unable to communicate her meaning to me (she scored at Level 0). Otherwise I did not penalise them for poor English. If they had attempted to give a reason, using words like so, therefore, because, and if I got the sense of it, I credited it.

A far more serious problem, I thought, was that they had not analysed the story properly. So I planned very carefully a lesson on analysis, using visual as well as verbal means, which was designed to encourage them both to weigh the evidence and the arguments, and also to deduce possible results from the proposed solution. I also explained the scoring to them, to encourage them to analyse their mistakes.

Lesson on analysing

It worked reasonably well, though it took two periods instead of one. First I gave them back the scripts telling them that most were unsatisfactory. Next I asked the class to discuss with their desk-mates what the real problem was, while I drew a sketch map of the imaginary villages on the board. (see next page)

Then I asked if everyone was now clear what the problem was. They assented, so I summarised on the board as follows:

- Government resources are limited
- there is money for 1 road, 1 clinic and 3 classrooms
- where should the facilities be built?

Question No.1: Which is the best village to develop?

We took Ha Pitso first, and they told me its advantages and disadvantages which I added to the map. They worked in pairs at the desks writing in their notebooks the advantages and disadvantages of Tlokoeng while I walked around checking that the ideas were sensible: I added a summary of their points to the board.

CHOOSING THE BEST SOLUTION FOR RURAL DEVELOPMENT

HA PITSO

Spring of pure water

Woodlot



Advantages

Good Water
Space on flat ground
Wood

Disadvantages

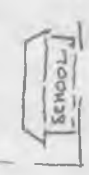
No school on a hill
Old houses
Eroded fields

Other Information

50 people
Don't want to move.

TLOKOENG

RIVER



VALLEY

Advantages

In a valley
School
Larger population

Disadvantages

Polluted Water
Eroded fields

Other Information

200 people
Don't want to move.

PROBLEM

Government Resources are Limited,

They can build 1 road
1 clinic

3 classrooms

Where should these be built?

5 km

The purpose of this was to get them to set out the arguments on both sides; so I deliberately did not ask them to decide on a village. Besides, the story had another piece of information; 'the villagers do not want to be moved.' I added this to our board summary and posed the next question;

Question 2: If we leave the villagers where they are, what would be the consequence of building the facilities in one or the other?

The students at first did not want to work in this hypothetical mode. In their minds, they were posing the question more simply: 'Where shall we build the facilities?' and they began to suggest decisions, supporting them with appropriate reasons e.g.

'The clinic should be built in Tlokoeng because people there get sick drinking polluted water.'

'The new classroom should be built at Ha Pitso because the young children can't walk 5 km.'

I went along with this for a time, trying merely to force them to think more deeply by saying 'Yes, but why?' to every suggestion. At one point a boy arrived at the idea of splitting the schools, having the lower standards in both villages and the higher standards at Tlokoeng, and making classes share a room. Then time was up.

In the following period I went back to asking for hypotheses. A boy said:

'If Tlokoeng moves to Ha Pitso, population will explode.'

This was a start. We discussed the differences between 'population explosion', 'population increase' and 'population density'; I then asked for more precise descriptions of possible consequences. The discussion went approximately as follows. (Unfortunately I did not use tape recordings; this is written up from field notes.)

S1 There will not be enough space at Ha Pitso.

T Do we know how big the hill is?

S1 No, perhaps there will be room, it says there is plenty of space.

S2 But not for 200.

T writes on the board: 'Perhaps there will be overcrowding, it depends on how big the hill is.'

S3 Population will decrease because there will be diseases.

T Why?

S3 From overcrowding.

S4 No, they will be healthy because of the pure water.

S5 There will not be enough fields; it says the fields are eroded.

This was just what I wanted. I summarized the discussion by writing on the board:

'The population might decrease or increase, depending on different things. On the one hand, the pure water will help people to keep healthy so it might increase. On the other hand there might not be enough fields and people would go hungry, so it might decrease.'

I emphasized they should practise using the phrases like 'it depends', 'it might' and 'on the one hand...on the other', and that they must be aware of what more information they might need before coming to a solution.

We did not have time to go through 'what might happen if the clinic was built here or there', but at least they had begun to operate in hypothetical terms. I hoped also I had encouraged them to delay coming to a conclusion on limited evidence, and to accept 'lack of closure' i.e. an open verdict. I knew from my colleagues' work during the year, and from the many discussions we had taped, that secondary students are only too keen to 'find the answer' and to come to a conclusion before looking at all the evidence or arguments. I wanted them to see there are no easy solutions in development: that whatever decisions were made, there would always be arguments on the other side (see next section).

I wiped off the summaries before they had had time to copy them all down, and told them to do the exercise again for homework.

Second Attempt

The results were beyond my expectations. Not only did they quote more evidence and give more reasons - that could have been done from recalling the class, or from making quick notes - but the levels of discussion were much higher. Scoring the same way as before, only one student got Level 1 (she who had 0 previously), only three scored lower than the first time, and four stayed at their old level. 21 students scored at a higher level! I had to introduce a Level 4, for those who were now able to balance one argument against the other, and to use 'it depends'. Admittedly there were only four of these, but there were 15 others who scored at Level 3. So over half the class had achieved a satisfactory level, since I had initially only aimed at Level 3 type replies to this question.

Extract 5 (girl: first attempt)

The best thing to do to help the villager of Ha Pitso and Tlokoeng first of all the government and Ministry of Rural Development gathered together to help the village. In rural areas there was no many things like shops, churches, schools, hospital and clinic and also there was no road.

The Ministry of Rural Development can see to it that all the thing which was no there in rural Development was there.

First she can build a road and clinic to help the sick people and build the hospital to help the pregnant and nursing mother.

So I think to help more people is better than to help fewer people that is why I say the people of Ha Pitso have to move to Tlokoeng, even though they are refusing. They have to be shown that the people of Tlokoeng are more than they are, so they will help them to build houses for them. And it is easier to build the road in the valley than up the hill and Tlokoeng has already a school.

The little money from the Ministry of Rural development could be used to build a clinic where there are already more people and there is already few classrooms that could be easily increased. The water will be purified and there will be a clinic to protect the people against diseases. The woodlot will be transferred to Tlokoeng to prevent soil erosion.

Comments

Scored Level 4 with 9 'E' points, 4 'Solutions' and 7 'Reasons.'

This student has an excellent command of English ('even though they are refusing.... They have to be shown ...') But he also has ideas of his own; the question of expense when building on a hill had not been discussed in class, and the stress on 'labour' is also original; he has learnt to use the concept in an abstract way. I am not sure how one transfers a woodlot, however!

This student presents his arguments based on the evidence balances the advantages and disadvantages, and produces a considered conclusion. He has covered each problem in turn. His command of language enables him to do this briefly and clearly.

Reflections

On the whole, the results signified to me, that, even with a poor grasp of English, students can begin, in Form C, to analyse a problem, reason from evidence and draw conclusions. Ideally I should have set a similar problem and given it a month later, to see if they could apply the skill in new situations, but unfortunately there was no time.

I now had more evidence that students can only be asked to analyse and reason in this way when they are familiar with the basic concepts involved. In this case, I knew they had already studied 'Problems of Rural Development' (J.C. syllabus Section 8) and they were familiar with the concepts of population density (though they confused this with population explosion), the need for unpolluted water mortality rates and social facilities, etc. It was noteworthy that there was no discussion about whether or not to force the people to move this class had not yet studied the section on Government. Had they done so, and understood concepts like government powers, participation and political decision-making, they might have been ready to discuss the problem in these terms.

Judgement involves analysis; it also involves balancing arguments and weighing the evidence. Further, one must know when evidence is sufficient to draw a definite conclusion and when the answer should be left open.

Comments

Scored at Level 1 no points for using the story.

The standard of English is reasonable. The problem is that the student has just repeated generalisations about rural development remembered from lessons. She has not applied her knowledge to solving the problem as presented.

Here is the same girl's answer, two weeks later:

Extract 5A

Tlokoeng move to Ha Pitso because Ha Pitso there is a good spring and there is plenty of space for a new house, there is a place where the ground is flat, and the population of Ha Pitso is 50 people only. The government can take the properties of the school of Tlokoeng to build the school of Ha Pitso, at Tlokoeng population is 200 it is much
5 population, there is no space for a new house, there is good spring the people of Tlokoeng get the water from the river which is polluted.

The government must build one road to Ha Pitso, one clinic to Ha Pitso, and only three classroom. The people of Ha Pitso and Tlokoeng
10 must gathered together to make the field which are quite badly eroded by dongas good.

The people of Ha Pitso moves to Tlokoeng they get diseases and they will die because of the water who come from the river. The water which come from the river is not good or cooking and drinking. It is
15 good for washing themself and washing the clothes. At Ha Pitso there is a old houses but the people of Ha Pitso they did not get diseases, there is a good spring. I say the peopple of Tlokoeng moves from Ha Pitso to avoid disease and many things.

Comments

Scored at Level 2+; 7 'E' points, 3 'S' and 2 'R'.

The student has now focussed on the problem and has used the evidence of the story. She has not however, produced much reasoning.

The English proves adequate for this descriptive account, but she is careless (a 'no' is omitted at Line 5) and she does not use the conditional properly (Line 12 should read: 'If the peoplemoved....they would get ...)

Extract 6 (boy : second attempt)

Ha Pitso has a low population and the houses there are mainly old. The village is on top of the hill and the fields are badly eroded by dongas, but there is woodlot on the side of the hill and also there is a plenty of space for new houses.

But although Ha Pitso has plenty of space and purified water, it is on top of the hill and it will be difficult and more expensive to build facilities on top of the hill and also because the people of Ha Pitso are fewer than those of Tlokoeng, so there is no labour there.

I made two attempts to help students specifically to practise 'balancing the arguments' and to examine the evidence.

(E) WEIGHING ARGUMENTS, or 'Sorting out the evidence'

First Attempt

This is the stimulus question I used at Makhetheng High School.

'The Road to the Village

Ha Khaba is a village a long way from the tar road. There is only a path for horses and people; cars cannot go to Ha Khaba.

The chief called a pitso about making a road. The government told the villagers that they would send food aid. Anybody who helped by digging and carrying stones would get bags of mealie meal and tins of oil.

Ntate Ramphobole said: "We don't want a road. They are dangerous. Many people get killed when taxis overturn."

Ntate Phofolo said: "If we have a road, many strangers will come to the village. The young people will learn bad habits."

Ntate Makara said "It is very hard work to build a road. It will take a long time."

a) Do you agree with any of the speakers? Why or why not?

b) If you were at the pitso, what would you say?'

In their pre-test, only seven students had tried to weigh up the arguments for and against the road. The others had either sided with one or other of the speakers, or had championed the building of a road, giving at most two or three reasons, the most common being the need to take sick people to hospital.

When I returned the scripts, I wrote the three statements on the board and asked for support or disagreement. Good answers were forthcoming, although only from a minority of the students. But then someone suggested that planes also killed a lot of people and others started arguing with them. We began discussing how we could find evidence to support one side or the other. Although they didn't realise it, the students had just formulated a hypothesis:

'That planes are more dangerous than cars.'

and I wanted to help them to see how they could test it. This took a long time because they had not, apparently, thought of how one might seek data in such a case. (I suppose they had done experimental testing in science, but I did not have a chance to discuss this with their science teacher).

We agreed we would have to find out how many people were killed in road accidents each year in Lesotho, and how many in plane crashes; and the same data on a world wide scale. Such statistics might be quite difficult to come by in Lesotho, but I think it is important to present students with actual data, so they realize that there are objective and quantitative sources where they can get answers to arguments, instead of relying on hunches or anecdotes.

I realized that hypothesis-testing was a new and difficult skill which would also need separate practice. I stored away the idea for future use, but so far I have not had another chance to try it out.

We concluded the lesson by drawing up a balance on the board, with arguments 'FOR THE ROAD' on one side and 'AGAINST THE ROAD' on the other.

FOR THE ROAD	AGAINST THE ROAD
- take sick people to hospital	- noise and pollution
- quicker travel	- strangers, immorality and crime
- goods will become cheaper and more plentiful in the cafes	- traffic accidents
- we will get food aid while working	- customs will change
- friends and relatives can come	- it means hard work making it

and wrote a summary

'On the one hand we realize the truth of what the bo-ntate have said, but on the other hand it will make travel easier and quicker for all of us. Though it means changes for our life, most of those changes will be for the better. We shall have to labour hard to build it, but at the same time food aid will benefit our families.'

The lessons ended on that day, and I did not have time to give them practice in writing balanced arguments. In their post-test, I gave them a problem in a similar format:

'Soil Erosion

There is a bad soil erosion in the village of Ha Khaba. The grass is all eaten down to the roots, and dongas are forming everywhere.

The chief calls a pitso and invites the Agricultural Extension Officer to speak. The officer says there are too many cattle in the village they are causing the overgrazing. What is to be done?

Ntate Ramphobole says: "We must kill off half our cattle."

Ntate Poofolo says: "We must send all our animals to the mountains."

Ntate Makara says: "We must grow lucerne and fodder crops for cattle instead of maize."

a) Do you agree with any of the speakers? Why, or why not?

b) If you were at the pitso, what suggestions would you make?

The results showed a slight rise in the average number of points made, but only four students tried to give a balanced conclusion; I concluded, again, that such skills cannot be taught in one lesson, but need sustained practice. It also showed that students may be strongly influenced by the context; most of them were sure they knew the answer - possibly the one they had been taught in their Agriculture lessons - and were not inclined to ponder alternatives. A less well-worn topic than soil erosion might have produced more original thinking.

Second Attempt

At Mabalane the class had studied the topic of migrant labour and had held a ~~short debate~~ on whether it was responsible for the break-up of so many marriages, so I knew that the necessary background knowledge was fresh in their minds. I hoped the debate would have encouraged them to look at both sides. I gave them an essay in two versions and split the class as before.

Version A

'If Basotho men were stopped from going to work in the mines Lesotho would develop better and more quickly.'

Do you think this statement is true? Give all the evidence for the statement, and then all the evidence against the statement. Then sum up, giving your conclusions. Write about 20-30 lines.

Version B

'If Basotho men were stopped from going to work in the mines, everyone in Lesotho would be much happier.'

Do you think this statement is true? Give all the evidence for the statement, and then all the evidence against the statement. Then sum up giving your conclusions. Write about 20-30 lines.

I wanted to test specifically:

(i) Academic skills: could they present, in written form, arguments for both sides, and give a conclusion?

(ii) Number and quality of arguments: firstly, how many points could they marshal in such an essay? Secondly, were these based closely on the realities of Lesotho and R.S.A.? (An earlier version of this question had produced, from other schools, some rather unrealistic answers.)

(iii) Lack of closure: I was interested in whether they were prepared to give a qualified conclusion, such as saying it could have both good and bad effects, or whether they could accept an open verdict, such as 'one can't tell, it depends on other factors'.

Motivation was good. They wrote full sides of foolscap in answer. The results were interesting and I found my own writing skills needed improving, as well as those of the students!

(i) At the level of academic skills, the students either had not read, or had not understood the instructions properly. Only four out of 35 gave evidence both for and against the statement. None of these four even attempted to sum up and give a conclusion.

I think the format of the question may have misdirected them. They saw the phrases: 'Do you think this statement is true?' and responded to that, rather than to the instructions to look at both sides. Most of them, indeed, started their essays by saying: 'This statement is true/not true and then proceeded to justify their stand. Had I put this question at the end of the instructions, they might have produced a concluding statement.

(ii) Arguments: the maximum number of points given was nine most students collected between four and seven, which I considered very creditable. Version B produced slightly higher numbers of points, probably because it was closer to the debate they'd had in class. Version A is, I think now, a better Development Studies question, as it forces them to look at development.

As far as realism was concerned, the reasons they gave were mostly sensible, fairly standard ones about remittances, uses of migrant money, ploughing, separation of families, etc. Clearly they had benefitted from their recent study of the topic.

(iii) Lack of closure: On the third point, the results were quite negative. As indicated above, very few even tried to put both sides. Only seven had given some sort of a summary of their view at the end, but they had looked at just one side of the question. There was no attempt at all to give an open verdict

Reflections

From this, and other evidence, such as that given in the other case-studies, I believe that Development Studies students in Lesotho find it quite difficult to accept that there is no 'right' or 'wrong' solution to development problems, and that most social phenomena have both positive and negative aspects. Yet I would agree with Peel that to be able to give such an answer is a sign of maturity of judgement. Some researchers have said that this 'acceptance of lack of closure' (known as ALC) - that is, resisting the temptation to come to a premature conclusion before all aspects have been studied - is a characteristic of Piaget's 'formal operations', the highest stage of cognitive development. (see Floyd, 1979)

I can only make very tentative suggestions about the reasons for this state of affairs. It may be that schooling as introduced by the missionaries was considered merely to be the transmission of established knowledge, and that teaching is still seen in this light today. It may be that 'closed' learning is thought suitable in other subjects and so the practice is also followed in Development Studies. It may be that exams are set to test 'recall', credit being given only for 'correct answers', and that most teaching in Forms A-C is directed to training for exams. (Mahlape 'Musi raises this point in her Case-study.)

How to teach for open-endedness is a topic also dealt with elsewhere in these Case-studies. In my view - and this was reinforced by the experiences I have described - it needs probably at least a term to instil the habit of looking at both sides; it may take longer before students recognize when a definite judgement can be made, and when judgement should be suspended, according to whether the evidence is sufficient or not. Perhaps maturity is involved, as Peel says, as well as experience; so younger students may not feel comfortable without a definite answer, nor be able to hold conflicting ideas in mind and balance them.

Demonstrating to students a good example

So while I felt these students had a lot of potential, I thought it would take ~~some~~ time to help them to fully comprehend the idea of 'open conclusions'. With one lesson at my disposal, I pinned up prepared sheets of newsprint with the following arguments, mostly culled from the students' own essays, (using Version A).

EVIDENCE FOR THE STATEMENT

- at present, many fields are not properly ploughed: the men could improve the agricultural productivity;
- Lesotho's resources are not fully used; the men could work in diamond mining; they could start up small factories and businesses. for example tanning leather or canning fruit.
- returning miners sometimes bring diseases, so the people might be healthier if they stayed at home.
- families are split when the father migrates to work. It is better for the wife and children when they all stay together.
- at present the Basotho men are developing the R.S.A. Their work should be done for their own country.

EVIDENCE AGAINST THE STATEMENT

- migrant workers send money home to build houses, buy consumer goods, invest in capital goods, (tractor, taxi, etc.) and educate their children. If they stayed at home, many families would be poorer.
- at present, there are very few jobs in Lesotho. The men would be unemployed, until factories were built.
- the money the Lesotho Government gets in attestation fees helps pay for some useful services run by Government (e.g. health).
- sometimes the migrant workers learn useful skills (such as motor mechanics).
- Lesotho is very small in relation to its population. Its resources are not sufficient to support 1½ million Basotho. They must seek work outside.

A POSSIBLE CONCLUSION

We think there are many bad aspects of the migrant labour system. However, at present Lesotho cannot support its people without the money which they send home. Let us all try to invest in Lesotho, in both agriculture and industry. Then there will be more work at home, and eventually Lesotho will be able to develop faster. But we cannot yet say how long it will be before there are jobs for all, because it depends on so many things that we cannot foresee.

The reasons for using sheets of newsprint were firstly, to save the time it takes to write such things on the chalkboard, and, secondly, that they could be left on the walls for the students to read and to copy if they needed to.

I explained what I meant by looking at both sides, citing evidence both for and against, and coming to a conclusion; I stressed that some conclusions had to be left open. As a short class exercise, I gave them the following topic:

'The headmaster says school uniform is not necessary in schools these days. He plans to abolish it. State all the evidence for and against uniform, drawing on your own experience. Sum up, giving your own view.'

They did this in pairs and enjoyed it. As exams were looming, I was not able to give them more essay practice. Topics I had planned to use include

'Foreign aid hinders development instead of helping it.'

'All shops, businesses and factories should be owned by the government, not by private business people.'

'Lesotho does not have enough natural resources for development.'

My revised instructions for each question would have been:

'Give all the arguments for, and all the arguments against, this statement. Then sum up carefully saying whether you agree, whether you disagree, or whether you have an open mind on the topic.'

From this exercise I learnt, among other things, how very carefully one has to phrase essay questions. The students, on the other hand, also have to learn to read them carefully. This is a skill, to put it no higher, which can help them to pass exams.

CONCLUSIONS

From this small and incomplete bit of Action-research I feel reasonably confident that students could be helped to raise their level of performance considerably in answering questions demanding reason, argument and judgement.

With reference to the hypotheses set out at the beginning I found evidence that if students are shown clearly what is required of them, and given practice, their standard of answer goes up. (Hypotheses (4) and (5)) Although I did not focus on English, I did find that students need to have mastered certain linguistic structures, such as the conditional, and to know phrases that show cause and effort, or that can indicate the balancing of ideas. (Hypothesis (3))

It also became clear to me that students must be introduced to the simple facts and basic concepts of a topic first, before they are able to 'think' about them, and manipulate them in various ways; conversely, the fact of using and applying these ideas both establishes the ideas firmly in students' minds and leads them on to more general and abstract concepts.

On the part of the teacher, she has to analyse the task carefully. It seems most effective to teach the skills stage by stage, so she must find out which kinds of skill the students lack and devise exercises to help them to practice them; in the early stages students need to try out just one skill at a time and later on they can combine them. Great care has to be taken over the wording of the question and instructions, and different versions should be tried out.

I have realized that it takes time for students to learn such skills. But, on the other hand, I do not believe we need to wait until Form C. On the contrary, I think one could, and should, begin training students in Form A to use such methods of thinking. One could start with simple games-like sessions (why did the football team lose? What would happen if sports/dancing/singing/uniform were abolished in school? Do you think boys and girls should do the same jobs? etc. etc.) which they would enjoy, and probably it would not matter much if they began by using a mixture of Sesotho and English until they had mastered the English syntax needed.

If I were able to carry out a further cycle of Action-research in Lesotho secondary schools, that would be my revised 'General Plan'. My revised hypothesis would be:

'Students, like investors, put in effort where they think there will be a pay-off; if we reward them well for thinking, they will think harder.'

I hope other teachers will take up the idea, and tell me what happens.

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CHAPTER 8
P A T T E R N S O F D I S C U S S I O N

Janet Stuart

Taping small group discussion proved one of the most fruitful methods, both for the feedback it provided for the teacher and for its effects on the students. This chapter contains extracts to illustrate some of our conclusions, drawn from the 28 small group recordings that we made with the three Form B/C classes over the year of the research.

Methods of Working with Students

First, a note on the methods we used. Usually students were eager to be taped, probably because they liked the attention, and they wanted to hear their own voices. Most knew how to operate tape-recorders, and to lessen the temptation to play around, I usually asked each to say their names and where they came from into the tape, and then played it back to them, so they could hear how they sounded. There is evidence from the transcripts that they were quite conscious of the recorder, particularly on the first occasion, as they would refer to it, and most groups tried very hard to speak English all the time they were being taped. (Some, when they used Sesotho, did so in whispers!)

Feedback to the Teacher

There is no doubt that what we got on tape was their 'best efforts' rather than 'typical' group discussion. But this in itself is useful for the teacher; it reveals where they still fall short. For example, the early tapes show, as 'Maisang Seotsanyana has pointed out, that most students are not 'discussing' in the sense of considering various alternatives. Given a list of questions, they try to find the 'correct answers' as quickly as possible and write them down.

Extract 1 'Question and Answer'

These students were preparing a report on their visit to BEDCO, using structured questions set by the teacher:

B The following er - the following industries found in BEDCO centre: Caledonia Meat Company, Kabi Leather Products, Rose Leather Works, The Peacock Garment Company,

G1 What goods and services are produced there?

B Caledonia Meat Company produce meat.

(Together) Kabi Leather Products produce leather / leather shoes / leather / belts / jackets /

G1 And ka (in) the wood what - what? (not clear).

B The wood works

(whispers)

G2 Limema Wood Works produce furnitures and also Taba furnishers.

- G1 What raw materials are used? They use timber,
 G2 Timber which come from Swaziland.
- G1 How many employers? It's about - they say it's about two hundred - three hundred, no, between three hundred to -
 B Four hundred / E (yes).
- G1 Do you think these industries are helping Lesotho? Helping Basotho? Yes.
 B Yes industries help Basotho.
- G1 How?
 G2 Because er.
 B Which way - it helps Basotho to give their needs.
 (Whispering in Sesotho).
 B It helps Basotho to won their own industries.

However, even when there was little discussion, we could hear how students can make use of the peer group to clarify information they have been given, or to get help in working something out.

Extract 2 'Helping Comprehension'

This group had to answer five comprehension questions set on a graph showing the rise in Lesotho's population between 1875 and 1976. They help each other to figure out the scale. Note also the linguistic practice around the words 'different' and 'difference'.

- G1 Is this for population?
 G2 This is for population.
 G3 They are sure that the population is increasing.
 G1 Why does it say the scale of population in thousands?
 G2 Because here is one thousand five hundred, but the population is one thousand two hundred and ...
 G3 I think it's millions.
 G4 One million two thirty thousand.
 G3 It's millions I think.
 G2 I think the scale is in thousands.
 G1 Because when we write millions will it be one and then five hundred and then the three zeros?
 G2 That's why I think it's in thousands.
 G4 So when they were drawing the graph they were referring to ... this numbers here?

G2 Yes.

G1 'What can you say about the population between 1936 and 1945? Explain why.'

G2 It has increased.

G3 There's such a little different ...

G2 It's difference ... different ...

Extract 3 'Clarifying facts for each other'

This group had just had a lecture on public health. They were supposed to be discussing: 'How does the work of the Public Health Department help development?' Instead, they spent the time discussing the content of the talk and in the process asking each other questions they had been unable to ask during the lecture. Listening to the tape, the teacher can find out what points need further explanation or emphasis.

G I like to know ... sorry, I like to know how can people be protected from the disease?

G We are coming to the protection

B No, no let me answer, let me answer your question .../ I say, to prevent those diseases we can first attack the source, ja, to find out where this disease comes from.

B What is a source? What is a source?

(Confused, talking together:) it is, a source is foundation of the disease, you know ...

B Yes, now it is clear.

(several start talking together).

Together G This one is, er, sexually-transmitted diseases...
We didn't talk about the diseases.

G Maybe, maybe a mother has a certain disease.

B Mm, mm, so?

G I think she is going, she is going to, to

B Produce babies

G Ja, and this baby is going to have this kind of disease, I think its ...

G How can baby attack the diseases from her mother?/ Because she is eating everything from her mother.

G He's using his mother's blood and maybe his mother has got those diseases they will come into the child and so he was born with these . . (confused)

B I think that one is clear.

- G And contact diseases, indirect and direct contact diseases. The indirect one is that one, which maybe, I take your jersey and you have chickenpox -
- B What is that?
- G Chickenpox is those small things -
- G No, they are like rash, but they are ... (unclear)
- B On the face?
- G Ja (confused) ... even on the arms.

Language

It is clear that English restricts the discussion to some extent. During one Sefika session, we could compare the excited, fluent discussions that were going on in Sesotho with the somewhat stilted ones we were recording in English. On the other hand, the two recorded groups who used Sesotho extensively at St. Stephens's did not produce a 'better discussion' (neither a higher number and level of ideas nor better social collaboration). And as the students in all three schools insisted: 'We must discuss in English because we have to learn English and write exams in English.'

However, the following extract shows how boys who are seriously trying to understand the structure of BEDCO have to struggle to express their thoughts. The frustration comes through very clearly when one listens to the actual tape!

Extract 4 'Language Frustration'

- Did er, something like ... did something like, er, how did we get the, the planks and er, er, something
- Er, we get it from South Africa, from others countries, but in some- times ... exported from ... er, no, it's wrong ... we ex ... we import the woods from South Africa and then we, we go, I mean, ache!
- Er, er, as we know that er, er, there are many peoples working in the, in the BEDCO, in the Basotho Enterprise Development Centre, er, how did they get the machines? Did the machines belong to the BEDCO or not?
- It belongs to the er, owner, it's the, it belongs to their, kore, I mean, it belongs to their own.
- Their BEDCO.
- No, not BEDCO. It belongs ...
- To the owners of the workers ...
- Ja, ja, to the owners of the workers, but / No, no, no, ...

- BEDCO help us to, to, ... to, to, in fact, to, to ...
- Look here, look here, the machines belongs to the BEDCO because you heard yesterday, they said the peoples come there, they, they, they, ...
- They come with ...
- The BEDCOs ... The BEDCOs have nothing to them, they borrow them the machine and ...
- (Together) No, no, not the machines, it's a house only, a house only
- And then, the people who work in this house,
They come ...
- They come with their own machines, own machines or something which is good for working in this factory.

On or off task?

Teacher have often expressed reservations about whether any work actually gets done in small group discussions. Obviously, when being recorded, students were usually on their best behaviour. But as students can't pretend for very long, as soon as the group became accustomed to the recorder, their 'normal' behaviour patterns reappeared. Among the more motivated students, this simply meant more talking at once, more use of Sesotho phrases, the odd bit of personal comment. Among a couple of poorly motivated and less-able groups, however, we noted how their attention wandered and they began to go off task, to make jokes, and even disturb others. Here are extracts from the only two tapes that reveal misbehaviour: in the first, an early tape, the chairman brings the group swiftly back on task. In the second, a neighbouring group interferes. (The two groups were being taped, unsupervised, in a quiet room).

Extract 5 'Having a Joke'

- What, what goods and services are produced?
- What service and goods? er, er. They produce ...
- Furniture.
- Fine foods ...
- Er, fine foods, and or, ...
- What fine foods?
- Such like, er ... soft drinks.
- Meat.
(Confused) (Laughter).
- And you also steal it today!

- No, no, no.
- You steal the polony, yes? (Laughter) Yes.
- And your friend.
- You cook it with a, you cook it with a ... (unclear).
(Confused).
- Stop that thing. Let's continue. Stop making something wrong.
Let's go on.

Extract 6 'Playing Around'

- Hey gentlemen, what are you saying? Hey Molapo, Molapo, no noise please, this tape record you.
- Yes, but you must remember that you have a blind man near here.
- No, never mind about that, never mind about that.
- (Unclear).
- Go back to your seat, what are you doing here, is there any something wrong here? Hey mdakuethu stop playing, hey bashana.
- The apple fall down.
- Two boys are fighting.
- (Unclear) We are discussing about the going of the Brewery, you see, er - what happens in Brewery.
- Hey stop playing.
- Ha re emiseng.
- (Unclear) (Tape stopped and restarted.)
- Let's continue, just to qetela this lesson.
- What is to qetela?
- To qetela is to finished or I mean to finish or ho qetela is the same thing, in English is the same thing.
- (Confusion).

But these were exceptions. On the whole, we were impressed by the high level of seriousness and the way in which task-oriented talk was sustained, sometimes for over half an hour, in unsupervised situations.

Social Relations

It became clear to us that the social relations existing among group members had a very great effect upon the level of discussions. For this reason, the teachers encouraged small, stable, self-elected groupings. The optimum group size seems to be between three and five members, made up of friends who frequently work together, probably - but not necessarily - of similar intellectual ability and interests. The most common pattern was the single sex group.

Even then, relations varied; some groups contained a strong personality who was allowed to dominate. Other encouraged general participation and, at their best, collaboratively moved towards a deeper understanding of the topic.

Extract 7 'Co-operative Learning'

Here are four boys discussing some pictures about needs and wants (see the Sefika Case-study). They listen to each other, and add to what has been said.

- B1 - I can say we have discussed about these pictures we see in front of us. Can we start about this one again?
- B2 What can we say about this one, er, er, it wants a person to think very hard, ja. These ones, I can say they need houses of shelter and they need clothing. You can see how poor they are, they want food, sometimes you can see that er, people like these ones die because of hunger. So, er, that is what I can say about them.
- B3 Yes especially they need shelters. Most of the people here need shelters and so they have, they must be sheltered well, because now they stay in old buildings, that are even protected by wood. So even the concrete iron over the buildings are now even like papers. And also clothing and food.
- B2 I can these people wants, ee, wants, want.
- B3 Ke taba hore u re fe sebaka.
- B2 These people's wants are things like tables, and er, I have said their wants are tables and chairs because if they can buy cars, then, and if they can buy, if when they don't have chairs, other things like that, they won't be able, er, to survive and if their friends can visit them, they can, they see that, er, their house, in their houses they've got, er, stones as their tables; they will love them, because they think they are rich outside their houses when they see him travelling by car. That's all I what to say.
- B3 Okay thank you, er, on my line I can say that, ee, shelters still were but if I compare them with the first picture that we have seen it also need the area.
- B4 Ja.
- B3 Or the place for building their house. The houses are very closely, closely together and even there are (unclear) ... It seems ee, they use, ee, lost materials which are, which are thrown away, but the people who have, ee, who live better.
- B4 Like what?
- B3 Like this wood. Maybe it was left when the, when these people who live better were roofing their house.
- B2 And even farming, its very difficult to them because I can say that they, they don't have spades and hoes for farming.

- B3 Yes, so their houses are closely together and they are built on top of the other.
- B1 This shows that they are also need food, when I see them.
- B3 E koale, e koale.
- B2 Tsoelang pele.
- B3 Ee, people in India, places like India the people live in concrete pipes and these people live in concrete pipes because they are unable, they are unable, ee, to be sheltered there in India because of the, because of the population; it's too high.
- Also
- B3 And the country is unwealthy. And if you can compare India to places like China, China is also high populated, but it can survive with its own people.
- B2 Because its able to feed them and shelter them, ee, because of the Agricultural movements which are done in China.

The next group - also at Sefika - is unusual. It was made up of four girls who rarely speak in class. The teacher deliberately selected them for taping to see how they would perform. The topic was: 'Is specialisation necessary?' Not only is the discussion intellectually on quite a high level - they understand the concept, can put different points of view and adduce reasons for them - but socially it is quite sophisticated. Although there is no apparent chairperson, each is encouraged to give her view in turn. They probe to elicit further clarification: 'Why?' 'To learn what?' 'What do you mean by dependent?', and reflect on the answers.

Extract 8 'Social Sophistication'

- Kekeletso - I can say specialisation is not necessary because if - may be you're a - you're a - a builder and your child is sick, you cannot - you can not nurse her because you only build, not look after a sick person.
- Mpho- I don't hear you, Kekeletso.
- Kek - I said I think specialisation is not good.
- Mpho- Why?
- Kek - Is not necessary because you do all - you do only kind of work and if you - you do only kind of work, you'll get tired and bored. What about you Mpho, what do you say?
- Mpho- I think specialisation is necessary.
- Kek - Why?
- Mpho- Because. Because when - because when we are - because when we are ten in the family, er - one of the people do - do their work and others - and other - and so on, so the work becomes easier and quick - quicker.
- Kek - But I think if you do only work you get bored and get tired of it.

Mp - What do you mean by dependent?

Mal - I say may be you're - you're a builder and - and you want to help somebody who is sick, you can not do that, you must go to a nurse and pay him before you can - you can - she can help you or he can helps you and you must pay him or her before she or he can - he can - he can help - helps you.

Cec - Do you understand Mpho?

Mp - Hm, (Yes).

Feedback to the Students

Taping groups for research purposes may be considered an artificial situation in class. But we believe that the act of taping itself improve students' performance and could be used for that purpose alone.

Both at L.I.F.E. and at Sefika the teacher played discussion tapes back to the class, and students were able to criticize the performance of different groups even before the teacher explained what she thought a discussion should be. Thus students became more aware of their own performances and how to improve them. The last two Sefika groups quoted above (Extracts 7 and 8), recorded in the second and third cycles, had probably benefitted from such explanations as well as the teacher's insistence on listening to alternative views. It seems reasonable to suppose the improvement will be permanent.

Maturation

Students grow up a lot in the course of their last year in Secondary school and the final two extracts probably demonstrates more than anything else the effects of maturation through the nine months from September of Form B to May of Form C.

Extract 9 is the same group as quoted in Extract 2. They have remained friends, and worked together; they are among the brightest students in the class. Here they are drawing up questions for the visit to BEDCO. They are really discussing the issue, even posing 'hypotheses' for consideration; they ask for reasons, and try to balance their views.

Extract 9 'Posing Questions'

- We can ask about the manager, is he white or black?
- What is important about the manager?
- And you see then at times you find that when a manager is a white person the improvements develop very quickly but when it's a black person.
- Oh, I can't agree with that.
- Why?

- Because they are (unclear)
- They are making ourselves ke hore they - slaves of those white people here re ntse re ... (unclear).
- But there may be no difference.
- Where?
- When the manager is a black.
- It won't be a difference, do you have any possible reasons?
- There can be a difference.
- Why? / Mabaka.
- Because they don't think in the same way
- I don't disagree but I want you to see that there can be difference.
- Don't think that white people are cleverer than black people.
- I don't mean that, you should - you should er - clear in mind that I don't mean the whites are clever than we are, but I know that there can be a difference when a manager is a black person and when a manager is a white person.
- Because of their thoughts, are they -
- It can be possible that the - we are - the factory goes faster when it's a black person and go slower when it's a white person.

Extract 10 'Discussing Agricultural Development'

This group contains some of these who were recorded in Extract 3 above. They are now discussing whether Basotho farmers should use complex technology. They are thrashing out the problem of where the tractors might come from; in doing so, the two main speakers carry on a relatively sophisticated dialogue listening to each other, making points and bringing information from many sources. This is a far cry from just clarifying the material from a lecture, as they did at the beginning.

- G But now, let me tell you, if you use a tractor you will finish quickly if you hire it than if you are ploughing by yourself or hire Basotho.
- B Or you hire Basotho, labour Basotho.
- G You hire Basotho labour, you hire - this would not hire a tractor you hire Basotho men and they are going to charge much money, a lot of money.
- B I understand but I want to know where are these tractors will be coming from?

- G From the Republic of South Africa now because RSA it where our country situation ...
- B Yes.
- G But ... you do not understand now.
- B I don't understand because er - the government have er -
- G Thanki, even yes now, there you have catch a point, because even the government - the government, I'm sure they've go tractors.
- B Ja, we hire.
- B But they are not enough.
- G And Thanki, may be here down there, at research division and college there down at Temong (Agric. Centre) there are some tractors there, they are given by America just like the one which are written John Deer, they come from America, America is supported er - those offices ... management and extention offices by those tractors. And you can hire those tractors and you can use them, after that you pay them and you will not pay them, and you will not pay them just cashly now, you'll - you'll make - you'll pay just a bit, bit by bit, small by small, step by step, you see. Those people ...
- B I don't understand - I don't understand because the government er - invests some of its money in educating the Basotho of the future, U ntse u utloa.
- G And then? / Yes.
- B And then the government also invests some of its money in improving the health of Lesotho cit, of Lesotho citizens so where, where are those tractors, er, ke hore how, how the government may buy those tractors?
- G Those tractors? / Let me tell him,
- SS We have - you know that - / Because Lesotho has less money so you have to explain.
- G Thanki, you know that in - in the work we have United -
- S United States.
- G Which have various...and -
- B Various what?
- G Various and - Thanki, here ...
- (Some voices from other groups)
- G Thanki, just like now, they start international farm for agricultural development in United Nations then that one, may be it's because er - just like if we've got United Nations now, they are going to help us, may be we will report to them, to those - and they - may be we go to the government, may be now, right?
- B Hm (Yes)

G Then we tell them that o, we've got problems, we want tractor, then they will report that to the United Nations because they've got right to tell the government - the United Nations, the government have got to tell them and responsibility, then - now, now the United Nations can go to South Africa or to America as I've told you, and tell them o, (unclear) there need this and this, they want tractor like that, you see? And they will send the tractor to Maseru, just like (unclear), they sell the tractors here at Maseru.

Teaching Discussion Skills

None of the teachers actually 'taught' discussion skills to Forms B/C. But at the N.T.T.C. Mahlape 'Musi devoted a class to talking about how to discuss, and followed this with a simulation of a 'model discussion' acted out by some articulate volunteers. (Interested readers may like to refer to her case-study). Of course the students at N.T.T.C. are more mature, but the team felt that it would also be possible to teach Forms B and C to discuss using a similar approach. The idea remains for another Action-Researcher to try out!

Practical Aspects of Recording

For teacher wishing to tape their classes and discussions, here are some practical details:

Tape-recorder. The very cheapest cassette recorders are not good enough to make a clear voice recording. For example, the KIC recorders gave a very unclear sound that could not be transcribed. The cheapest portable cassette recorder that I found capable of doing the job was the Blaupunkt CC 2500. The controls on this model include a 'pause' button, which is essential for the transcriber. It cost R60.99 at Juniors in Bloemfontein in 1985 (without tax). This model has a condenser mike; a separate microphone, which improves the quality of the recording, cost another R16.00. A much superior machine is the Tandberg Audio Tutor 101, costing approximately R300.00. It is available from Mrs. Sue Brown, P.O. Box 794, Bloemfontein, who is an agent for educational aids of this type.

Tapes Blank 60-minute tapes cost between M1.75 and M3.50, depending on the quality, at Maseru O.K. Bazaar in 1985.

Grants The Leggett Trust is a British charity whose purpose is to give small grants to African schools for books and equipment. In 1984-85 they helped several Lesotho schools buy tape-recorders and film projectors. Write to: Mr. Peter Kuentler, 8 Heath Drive, London, N.W.3, U.K.

CHAPTER 9

SOME NOTES FOR TEACHERS AND CONSULTANTS ON DOING RESEARCH IN THEIR OWN CLASSROOMS

Janet Stuart

Introduction

Teachers should not feel they have to wait to be 'trained' to do action-research in their classrooms. They should go ahead and try it out, using any method that they can think of. There is no one 'correct' way: almost all methods will yield some benefit, and teachers will be able to refine their techniques until they find those that prove most fruitful for them. Classroom Action-research began with ordinary classroom teachers, and it is still being developed by them. Everyone is invited to contribute to the process.

Literature

It is hoped that the case-studies in this report will give teachers some ideas about how they can start. Two further useful documents are:

'Action-Research: A Framework for Self-Evaluation in Schools' by John Elliott.

(Working Paper No. 1: School Council Programme 2, "Teacher-Pupil Interaction and the Quality of Learning' Project. Published by Cambridge Institute of Education, 1981). This outlines a theoretical framework in simple fashion. The LARG team based their work on this model.

'Ways of Doing Research in One's Own Classroom' by Ford Project Teachers. (Ford Teaching Project, Unit 2: Research Methods. Published by Cambridge Institute of Education, no date). This gives a short practical description of methods that teachers have found useful. Ways of obtaining these documents are given at the end of this chapter.

The Roles of Teachers and Consultants

There is no doubt that classroom Action-research is much easier when done in pairs or as a group rather than when done on one's own. One needs the support of a colleague, both to talk things over with, and for practical reasons like carrying out observations and interviews.

In the suggestions which follow, I shall refer to the person undertaking the research as the 'teacher', and the one who supports and observes as the 'consultant'. The 'teacher' is the person working with the students; the one who plays the role of 'consultant' may be an outsider, an academic, a friend or a colleague from the same school. In the latter case, the two people may reverse roles from time to time, so that each has a chance of researching their own teaching. This makes relationship more equal.

Some Suggestions for Working Together

1. The teacher is the one in charge

The teacher should decide what is to be investigated and by what method. The consultant is there to support and help the teacher. S/he can offer ideas, suggestions, advice, etc. but the teacher has the final say.

2. What to observe: Only specific data is to be collected

The teacher may have a specific hypothesis in mind, which requires the consultant to help collect certain data. Here are two examples:

'If I challenge students to think more deeply by probing questions in class, their level of answers, both oral and written, will improve.'

'If I train students in discussion skills, they will benefit more from small group work.'

In such a case, the research will clearly be directed to monitoring certain aspects. In the first example, the teacher might ask the consultant to note down all the probing questions asked during the lesson, and also note where an opportunity for probing was not taken. Afterwards, they might analyse together students' essays to see how far the scripts show evidence of high cognitive skills.

In the second example, the consultant could help the teacher to organise a model discussion and then, during small group work, help to tape. If no tape-recorder is available, the consultant could sit inconspicuously, but within earshot of a group, and take notes of what goes on, leaving the teacher free to circulate among the groups.

Even if the teacher is still at the exploratory or 'reconnaissance' stage, the consultant should try to avoid commenting broadly on whether the lesson was 'good' or 'bad'. It is much easier for both if the teacher asks the consultant beforehand to watch/listen for specific things. Here are some examples:

- i) Student Participation. The consultant can use a seating plan and ticks to show which students took part, and how often, which students were asked by the teacher, and which were left out, etc.
- ii) Questioning: Whether the questions were open or closed, factual or evaluative, probing, and at what level of cognitive skill, etc.; how many questions were asked by the teacher and how many by students.
- iii) Rapport with Students: What kinds of reinforcement did the teacher use; whether the teacher cut off or ignored any student input; non-verbal communication such as smiles, eye-contact, etc.

iv) Teacher presentation: The teacher might ask the consultant to provide answers to such questions as:

- how long did I spend talking?
- were my explanations clear?
- did I give enough appropriate examples?
- could all students see (e.g. the demonstrations, black-board work, etc.)?
- did any part of the lesson seem rushed?
- did I give adequate time for questions?

v) Mannerism: The teacher may wish to know if there are any mannerisms that s/he is unaware of, such as unnecessary repetition, voice tricks, etc.

3. Acting as technician

If a tape-recorder is used, the consultant should take care of this, so the teacher can concentrate on the lesson.

4. Planning and Reviewing

It is essential to put aside time to plan and review. Experience shows that three sessions are useful:

- a) Preliminary meeting: This should be about a week beforehand so that the teacher can explain what s/he hopes to do, and the consultant can offer any ideas to supplement the plan. Equipment or resources can then be prepared in advance.
- b) Short discussion: Immediately after the lesson there should be some exchange of views, even if time is short. The teacher should first give his/her view of the lesson, and the consultant should respond appropriately with his/her perceptions. Especially in the early stages of the relationship, the consultant should avoid too much negative comment; if major problems are revealed, these should be discussed later. On the other hand, uncritical praise is of little use to teachers earnestly trying to improve their teaching!
- c) Reflective Review: This should take place when the data is available, e.g. if the lesson was taped, after the teacher has listened to it and/or read the transcript. If the consultant has collected other kinds of data, such as field notes or questionnaire answers, these should be analysed and given in a digestible form to the teacher as soon as possible. The review meeting then gives an opportunity for both to talk over the data; problems can be discussed objectively, being based on information and not just on feelings. The teacher can then review hypotheses in this light, and plan further action, as Elliot suggests.

Interviewing Students or 'Triangulation'

Sometimes a teacher has established such a good relationship that s/he can get honest feedback from the students directly. But sometimes, especially if the learning is not going so well, the consultant can act as an intermediary; using short questionnaires, checklists, or interviews, s/he can elicit some of the students' problems. This can be extremely useful to the teacher, who can then compare the views of the consultant, the views of the students, and

his/her own views, to arrive at a clearer perception of what goes on in the classroom.

Personal Relations

Teaching is an activity that involves one's whole personality. Many teachers feel quite vulnerable and threatened at first when they have a 'stranger' in the classroom, or even a tape-recorder. One of the tasks of the consultant is to understand this, and to help the teacher over the first hurdles sympathetically. Experience in guidance and counselling skills is useful here. After a while, the nervousness wears off and recording and/or feedback becomes taken as a matter of course. At this stage, freer and deeper analysis becomes possible.

Teachers should never feel pressurised into undertaking self-evaluation. A certain degree of confidence and maturity is necessary, and some people may not yet have reached that stage. However, by establishing a relationship of trust, the consultant can encourage teachers to venture into such research. That is one reason confidentiality is important; the teacher must be sure that the results won't be reported to the principal or other colleagues without explicit permission.

How to obtain the two articles

Write to: Mrs. Dido Whitehead, Cambridge Institute of Education
Shaftesbury Road, Cambridge, CB2 2BX, England.

The cost of the articles plus postage would be approximately £3.00.

N.U.L.: A copy of each can be borrowed (or photocopied, at cost) from Mr. Nkoale in Office A214, N.U.L., P.O. Roma, 180.

N.T.T.C.: A copy of each can be borrowed (or photocopied, at cost) from Miss. Mahlape 'Musi in the Social and Development Studies Office.



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